

SEQUENCE LISTING

<110> Chiron SRL
Norais, Nathalie
Grandi, Guido

<120> Unexpected Meningococcus Surface Proteins

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<151> 2003-03-27

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<213> Neisseria meningitidis

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Glu Gly Glu Phe His Pro Glu Asp Asp Val Ala Pro Val Ala Ala His
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Glu Asn Lys Pro Ala Leu Asn Ala Gly Asp Val Val Met Leu Gln Asn
100 105 110

Val Arg Ile Asn Lys Gly Glu Lys Lys Asn Asp Leu Glu Leu Gly Lys
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Ala Tyr Ala Ser Leu Cys Asp Val Phe Val Asn Asp Ala Phe Gly Thr
130 135 140

Ala His Arg Ala Gln Ala Ser Thr Glu Ala Val Ala Gln Ala Ala Pro
145 150 155 160

Val Ala Cys Ala Gly Val Leu Met Ala Gly Glu Leu Asp Ala Leu Gly
165 170 175

Lys Ala Leu Lys Gln Pro Ala Arg Pro Met Val Ala Ile Val Ala Gly
Page 1

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535

540

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 50 55 60
 Thr Val Lys Arg Asp Val Val Trp Val Glu Gln Thr Glu Gln Leu Gly
 65 70 75 80
 Thr Gly His Ala Val Lys Thr Ala Leu Pro His Leu Ser Ala Glu Gly
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 Arg Thr Leu Val Leu Tyr Gly Asp Val Pro Leu Ile Asp Val Glu Thr
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 Leu Glu Thr Leu Leu Glu Ala Ala Gly Asn Glu Val Gly Leu Leu Thr
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 Asp Val Pro Asn Asp Pro Thr Gly Leu Gly Arg Ile Ile Arg Asp Ser
 130 135 140
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 Gln Lys Ala Val Lys Glu Ile Asn Thr Gly Ile Leu Val Leu Pro Asn
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 260 265 270
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 275 280 285
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 290 295 300
 Asn Ser Lys Ile Ala Pro Phe Ser His Leu Glu Ser Cys Glu Val Gly
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 340 345 350
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 Ala Glu Val Gly Cys Lys Thr Asn Phe Gly Ala Gly Thr Ile Ile Ala
 370 375 380
 Asn Tyr Asp Gly Val His Lys His Lys Thr Val Ile Gly Asp Glu Val
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Lys Asp Val Arg Asp Arg Val Ser Leu Lys Gly Leu Lys Asp Gly Asn
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 Glu Glu Thr Ala Ala Ile Ala Ala Ser Thr Met Asn Ala Glu Gln Ser
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260 265 270
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275 280 285
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Gln Asn Leu Glu Val Asp Phe Ser Phe Glu Leu Pro Asn Val Ala Arg
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Phe Arg Val Asn Ala Phe Asn Ile Gly Arg Gly Pro Ala Ala Val Phe
Page 9

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115 120 125
Thr Gly Pro Thr Gly Ser Gly Lys Ser Thr Thr Leu Ala Ala Met Ile
130 135 140
Asn Tyr Ile Asn Glu Thr Gln Pro Ala His Ile Leu Thr Ile Glu Asp
145 150 155 160
Pro Ile Glu Phe Val His Gln Ser Lys Lys Ser Leu Ile Asn Gln Arg
165 170 175
Glu Leu His Gln His Thr Leu Ser Phe Ala Asn Ala Leu Arg Ser Ala
180 185 190
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210 215 220
Phe Gly Thr Leu His Thr Thr Gly Ala Ala Lys Thr Val Asp Arg Ile
225 230 235 240
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245 250 255
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260 265 270
Asp Gly Asn Gly Arg Val Ala Ser His Glu Ile Leu Ile Ala Asn Pro
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<213> Neisseria meningitidis

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Page 10

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Lys Glu Tyr Val Glu Ser Lys Gly Met Ile Phe Ile Ser Thr Pro Phe
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Ser Arg Ala Ala Ala Leu Arg Leu Gln Arg Met Asp Ile Pro Ala Tyr
115 120 125
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Ala Ser Phe Gly Lys Pro Ile Ile Leu Ser Thr Gly Met Asn Ser Ile
145 150 155 160
Glu Ser Ile Lys Lys Ser Val Glu Ile Ile Arg Glu Ala Gly Val Pro
165 170 175
Tyr Ala Leu Leu His Cys Thr Asn Ile Tyr Pro Thr Pro Tyr Glu Asp
180 185 190
Val Arg Leu Gly Gly Met Asn Asp Leu Ser Glu Ala Phe Pro Asp Ala
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Ile Ile Gly Leu Ser Asp His Thr Leu Asp Asn Tyr Ala Cys Leu Gly
210 215 220
Ala Val Ala Leu Gly Gly Ser Ile Leu Glu Arg His Phe Thr Asp Arg
225 230 235 240
Met Asp Arg Pro Gly Pro Asp Ile Val Cys Ser Met Asn Pro Asp Thr
245 250 255
Phe Lys Glu Leu Lys Gln Gly Ala His Ala Leu Lys Leu Ala Arg Gly
260 265 270
Gly Lys Lys Asp Thr Ile Ile Ala Gly Glu Lys Pro Thr Lys Asp Phe
275 280 285
Ala Phe Ala Ser Val Val Ala Asp Lys Asp Ile Lys Lys Gly Glu Leu
290 295 300
Leu Ser Gly Asp Asn Leu Trp Val Lys Arg Pro Gly Asn Gly Asp Phe
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<213>

Neisseria meningitidis

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Pro Thr Arg Ala Glu Val Ser Asp Val Ala Asn Ala Val Leu Asp Gly
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 Arg Ala Val His Ala Lys Ala Ile Val Ala Leu Thr Glu Ser Gly Ser
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 Val Arg Pro Leu Ile Leu Ala Thr Ser Thr Asp His Asp Thr Ala Leu
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 Asn Glu Val Glu Thr Met Leu Val Glu His Asn Ile Leu His Ser Gly
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 Ala Ala Gly Met Ala Phe Ser Thr Gln Thr Leu Ala Ala Asn Leu Glu
 50 55 60
 Val Arg Pro Asn Ala Pro Glu Arg Tyr Thr Val Lys Gln Gly Asp Thr
 65 70 75 80
 Leu Trp Gly Ile Ser Gly Lys Tyr Leu Tyr Ser Pro Trp Gln Trp Gly
 85 90 95
 Arg Leu Trp Asp Ala Asn Arg Asp Gln Ile His Asn Pro Asp Leu Ile
 100 105 110
 Tyr Pro Asp Gln Val Leu Val Leu Arg His Val Asp Gly Glu Pro Arg
 115 120 125
 Leu Gly Leu Glu Gln Thr Asp Gly Ile Pro Val Val Lys Met Ser Pro
 Page 13

130 135 140
 Asp Lys Glu Val Ser Gly Tyr Gly Ile Pro Ala Ile Asp Val Asn Phe
 145 150 155 160
 Tyr Arg Ile Phe Met Arg His Pro Gln Ile Val Ser Arg Lys Glu Thr
 165 170 175
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 Thr Lys Gly Thr Arg Val Tyr Thr Lys Gly Leu Lys Glu Pro Gly Arg
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 Tyr Leu Thr Tyr Arg Ile Asn Lys Asn Ile Thr Asp Pro Asp Thr Gly
 210 215 220
 Lys Phe Leu Gly Gln Glu Val Ala Phe Ser Gly Ile Val Arg Ser Leu
 225 230 235 240
 Asp Tyr Thr Asp Ser Val Leu Glu Gln Arg Ser Lys Gln Ala Gly Glu
 245 250 255
 Arg Pro Lys Asp Asn Glu Tyr His Thr Arg Thr His Pro Leu Ile Thr
 260 265 270
 Pro Leu Arg Thr Pro Ser Ile Gln Pro Leu Val Val Glu Thr Ala Ile
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 Asp Arg Phe Asn Met Met Pro His Glu Pro Ser Arg Pro Val Gln Ala
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 340 345 350
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 370 375 380
 Glu Glu Val Gly Leu Ala Met Val Tyr Arg Thr Ser Glu His Leu Ser
 385 390 395 400
 Ser Ala Ile Ile Leu Glu Asn Ile Ser Asp Ile Ser Val Gly Asp Thr
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Leu Leu Lys Glu Trp Ala Lys Asn Gly Gln Leu Asn Met Pro Val Val
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Met Met Ser Gly His Ala Ser Ile Asp Thr Ala Val Glu Ala Thr Lys
85 90 95
Ile Gly Ala Ile Asp Phe Leu Glu Lys Pro Ile Ser Leu Gln Lys Leu
100 105 110
Leu Ser Ala Val Glu Asn Ala Leu Lys Tyr Gly Ala Ala Gln Thr Glu
115 120 125
Thr Gly Pro Val Phe Asp Lys Leu Gly Asn Ser Ala Ala Ile Gln Glu
130 135 140
Met Asn Arg Glu Val Gly Ala Ala Val Lys Cys Ala Ser Pro Val Leu
145 150 155 160
Leu Thr Gly Glu Ala Gly Ser Pro Phe Glu Thr Val Ala Arg Tyr Phe
165 170 175
His Lys Asn Gly Thr Pro Trp Val Ser Pro Ala Arg Val Glu Tyr Leu
180 185 190
Ile Asp Met Pro Met Glu Leu Leu Gln Lys Ala Glu Gly Gly Val Leu
195 200 205
Tyr Val Gly Asp Ile Ala Gln Tyr Ser Arg Asn Ile Gln Ala Gly Ile
210 215 220
Ala Phe Ile Val Gly Lys Ala Glu His Arg Arg Val Arg Val Val Ala
225 230 235 240
Ser Gly Ser Arg Ala Ala Gly Ser Asp Gly Ile Ala Cys Glu Glu Lys
245 250 255
Leu Ala Glu Leu Leu Ser Glu Ser Val Val Arg Ile Pro Pro Leu Arg
260 265 270
Met Gln His Glu Asp Ile Pro Phe Leu Ile Gln Gly Ile Ala Cys Asn
275 280 285
Val Ala Glu Ser Gln Lys Ile Ala Pro Ala Ser Phe Ser Glu Glu Ala
290 295 300
Leu Ala Ala Leu Thr Arg Tyr Asp Trp Pro Gly Asn Phe Asp Gln Leu
305 310 315 320
Gln Ser Val Val Ala Thr Leu Leu Leu Glu Ala Asp Gly Gln Glu Ile

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325
 Gly Ala Gly Ala Val Ser Ser Leu Leu Gly Gln Asn Val Pro Ala Glu
 340 345 350
 Gly Ala Glu Asp Met Val Gly Gly Phe Asn Phe Asn Leu Pro Leu Arg
 355 360 365
 Glu Leu Arg Glu Glu Val Glu Arg Arg Tyr Phe Glu Tyr His Ile Ala
 370 375 380
 Gln Glu Gly Gln Asn Met Ser Gln Val Ala Gln Lys Val Gly Leu Glu
 385 390 395 400
 Arg Thr His Leu Tyr Arg Lys Leu Lys Gln Leu Gly Ile Gly Val Ser
 405 410 415
 Arg Arg Ala Gly Glu Lys Thr Glu Glu
 420 425
 <210> 12
 <211> 394
 <212> PRT
 <213> Neisseria meningitidis
 <400> 12
 Met Ala Lys Glu Lys Phe Glu Arg Ser Lys Pro His Val Asn Val Gly
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 Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu Thr Ala Ala Leu
 20 25 30
 Thr Thr Ile Leu Ala Lys Lys Phe Gly Gly Ala Ala Lys Ala Tyr Asp
 35 40 45
 Gln Ile Asp Asn Ala Pro Glu Glu Lys Ala Arg Gly Ile Thr Ile Asn
 50 55 60
 Thr Ser His Val Glu Tyr Glu Thr Glu Thr Arg His Tyr Ala His Val
 65 70 75 80
 Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met Ile Thr Gly Ala
 85 90 95
 Ala Gln Met Asp Gly Ala Ile Leu Val Cys Ser Ala Ala Asp Gly Pro
 100 105 110
 Met Pro Gln Thr Arg Glu His Ile Leu Leu Ala Arg Gln Val Gly Val
 115 120 125
 Pro Tyr Ile Ile Val Phe Met Asn Lys Cys Asp Met Val Asp Asp Ala
 130 135 140
 Glu Leu Leu Glu Leu Val Glu Met Glu Ile Arg Asp Leu Leu Ser Ser
 145 150 155 160
 Tyr Asp Phe Pro Gly Asp Asp Cys Pro Ile Val Gln Gly Ser Ala Leu
 165 170 175
 Lys Ala Leu Glu Gly Asp Ala Ala Tyr Glu Glu Lys Ile Phe Glu Leu
 180 185 190
 Ala Ala Ala Leu Asp Ser Tyr Ile Pro Thr Pro Glu Arg Ala Val Asp

195

Lys Pro Phe Leu Leu Pro Ile Glu Asp Val Phe Ser Ile Ser Gly Arg
210 215 220
Gly Thr Val Val Thr Gly Arg Val Glu Arg Gly Ile Ile His Val Gly
225 230 235 240
Asp Glu Ile Glu Ile Val Gly Leu Lys Glu Thr Gln Lys Thr Thr Cys
245 250 255
Thr Gly Val Glu Met Phe Arg Lys Leu Leu Asp Glu Gly Gln Ala Gly
260 265 270
Asp Asn Val Gly Val Leu Leu Arg Gly Thr Lys Arg Glu Asp Val Glu
275 280 285
Arg Gly Gln Val Leu Ala Lys Pro Gly Thr Ile Thr Pro His Thr Lys
290 295 300
Phe Lys Ala Glu Val Tyr Val Leu Ser Lys Glu Glu Gly Gly Arg His
305 310 315 320
Thr Pro Phe Phe Ala Asn Tyr Arg Pro Gln Phe Tyr Phe Arg Thr Thr
325 330 335
Asp Val Thr Gly Ala Val Thr Leu Glu Glu Gly Val Glu Met Val Met
340 345 350
Pro Gly Glu Asn Val Thr Ile Thr Val Glu Leu Ile Ala Pro Ile Ala
355 360 365
Met Glu Glu Gly Leu Arg Phe Ala Ile Arg Glu Gly Gly Arg Thr Val
370 375 380
Gly Ala Gly Val Val Ser Ser Val Ile Ala
385 390

<210> 13
<211> 178
<212> PRT
<213> Neisseria meningitidis

<400> 13
Met Ser Lys Lys Trp Tyr Val Val Gln Ala Tyr Ser Gly Phe Glu Lys
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20 25 30
Asp Tyr Phe Gly Gln Ile Leu Val Pro Val Glu Lys Val Val Asp Ile
35 40 45
Arg Asn Gly Arg Lys Thr Ile Ser Glu Arg Lys Ser Tyr Pro Gly Tyr
50 55 60
Val Leu Val Glu Met Glu Met Thr Asp Asp Ser Trp His Leu Val Lys
65 70 75 80
Ser Thr Pro Arg Val Ser Gly Phe Ile Gly Gly Arg Ala Asn Arg Pro
85 90 95
Thr Pro Ile Ser Gln Arg Glu Ala Glu Ile Ile Leu Gln Gln Val Gln

100 105 110
 Thr Gly Ile Glu Lys Pro Lys Pro Lys Val Glu Phe Glu Val Gly Gln
 115 120 125
 Gln Val Arg Val Asn Glu Gly Pro Phe Ala Asp Phe Asn Gly Val Val
 130 135 140
 Glu Glu Val Asn Tyr Glu Arg Asn Lys Leu Arg Val Ser Val Gln Ile
 145 150 155 160
 Phe Gly Arg Glu Thr Pro Val Glu Leu Glu Phe Ser Gln Val Glu Lys
 165 170 175

Ile Asn

<210> 14
 <211> 231
 <212> PRT
 <213> Neisseria meningitidis

<400> 14
 Met Ala Lys Val Ser Lys Arg Leu Lys Ala Leu Arg Ser Ser Val Glu
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 Ala Asn Lys Leu Tyr Ala Ile Asp Glu Ala Ile Ala Leu Val Lys Lys
 20 25 30
 Ala Ala Thr Ala Lys Phe Asp Glu Ser Val Asp Val Ser Phe Asn Leu
 35 40 45
 Gly Val Asp Pro Arg Lys Ser Asp Gln Val Ile Arg Gly Ser Val Val
 50 55 60
 Leu Pro Lys Gly Thr Gly Lys Ile Thr Arg Val Ala Val Phe Thr Gln
 65 70 75 80
 Gly Ala Asn Ala Glu Ala Ala Lys Glu Ala Gly Ala Asp Ile Val Gly
 85 90 95
 Phe Glu Asp Leu Ala Ala Glu Ile Lys Ala Gly Asn Leu Asn Phe Asp
 100 105 110
 Val Val Ile Ala Ser Pro Asp Ala Met Arg Ile Val Gly Gln Leu Gly
 115 120 125
 Thr Ile Leu Gly Pro Arg Gly Leu Met Pro Asn Pro Lys Val Gly Thr
 130 135 140
 Val Thr Pro Asn Val Ala Glu Ala Val Lys Asn Ala Lys Ala Gly Gln
 145 150 155 160
 Val Gln Tyr Arg Thr Asp Lys Ala Gly Ile Val His Ala Thr Ile Gly
 165 170 175
 Arg Ala Ser Phe Ala Glu Ala Asp Leu Lys Glu Asn Phe Asp Ala Leu
 180 185 190
 Leu Asp Ala Ile Val Lys Ala Lys Pro Ala Ala Ala Lys Gly Gln Tyr
 195 200 205
 Leu Lys Lys Val Ala Val Ser Ser Thr Met Gly Leu Gly Ile Arg Val

210

215

220

Asp Thr Ser Ser Val Asn Asn
225 230

<210> 15
<211> 166
<212> PRT
<213> Neisseria meningitidis

<400> 15
Met Ser Leu Asn Ile Glu Thr Lys Lys Val Ala Val Glu Glu Ile Ser
1 5 10 15
Ala Ala Ile Ala Asn Ala Gln Thr Leu Val Val Ala Glu Tyr Arg Gly
20 25 30
Ile Ser Val Ser Ser Met Thr Glu Leu Arg Ala Asn Ala Arg Lys Glu
35 40 45
Gly Val Tyr Leu Arg Val Leu Lys Asn Thr Leu Ala Arg Arg Ala Val
50 55 60
Gln Gly Thr Ser Phe Ala Glu Leu Ala Asp Gln Met Val Gly Pro Leu
65 70 75 80
Val Tyr Ala Ala Ser Glu Asp Ala Val Ala Ala Ala Lys Val Leu His
85 90 95
Gln Phe Ala Lys Lys Asp Asp Lys Ile Val Val Lys Ala Gly Ser Tyr
100 105 110
Asn Gly Glu Val Met Asn Ala Ala Gln Val Ala Glu Leu Ala Ser Ile
115 120 125
Pro Ser Arg Glu Glu Leu Leu Ser Lys Leu Leu Phe Val Met Gln Ala
130 135 140
Pro Val Ser Gly Phe Ala Arg Gly Leu Ala Ala Leu Ala Glu Lys Lys
145 150 155 160
Ala Gly Glu Glu Ala Ala
165

<210> 16
<211> 123
<212> PRT
<213> Neisseria meningitidis

<400> 16
Met Ala Ile Thr Lys Glu Asp Ile Leu Glu Ala Val Gly Ser Leu Thr
1 5 10 15
Val Met Glu Leu Asn Asp Leu Val Lys Ala Phe Glu Glu Lys Phe Gly
20 25 30
Val Ser Ala Ala Ala Val Ala Val Ala Gly Pro Ala Gly Ala Gly Ala
35 40 45
Ala Asp Ala Glu Glu Lys Thr Glu Phe Asp Val Val Leu Ala Ser Ala
50 55 60
Gly Asp Gln Lys Val Gly Val Ile Lys Val Val Arg Ala Ile Thr Gly

245 250 255
 Ala Lys Val Asp Ile Leu Asp Lys Glu Gly Asn Val Leu Val Ala Lys
 260 265 270
 Gly Lys Arg Ile Thr Ala Lys Asn Ile Arg Asp Ile Thr Asn Ala Gly
 275 280 285
 Leu Thr Arg Leu Asp Val Glu Pro Glu Ser Leu Leu Gly Lys Ala Leu
 290 295 300
 Ala Ala Asp Leu Ile Asp Ser Glu Thr Gly Glu Val Leu Ala Ser Ala
 305 310 315 320
 Asn Asp Glu Ile Thr Glu Glu Leu Leu Ala Lys Phe Asp Ile Asn Gly
 325 330 335
 Val Lys Glu Ile Thr Thr Leu Tyr Ile Asn Glu Leu Asp Gln Gly Ala
 340 345 350
 Tyr Ile Ser Asn Thr Leu Arg Thr Asp Glu Thr Ala Gly Arg Gln Ala
 355 360 365
 Ala Arg Val Ala Ile Tyr Arg Met Met Arg Pro Gly Glu Pro Pro Thr
 370 375 380
 Glu Glu Ala Val Glu Gln Leu Phe Asn Arg Leu Phe Phe Ser Glu Asp
 385 390 395 400
 Ser Tyr Asp Leu Ser Arg Val Gly Arg Met Lys Phe Asn Thr Arg Thr
 405 410 415
 Tyr Glu Gln Lys Leu Ser Glu Ala Gln Gln Asn Ser Trp Tyr Gly Arg
 420 425 430
 Leu Leu Asn Glu Thr Phe Ala Gly Ala Ala Asp Lys Gly Gly Tyr Val
 435 440 445
 Leu Ser Val Glu Asp Ile Val Ala Ser Ile Ala Thr Leu Val Glu Leu
 450 455 460
 Arg Asn Gly His Gly Glu Val Asp Asp Ile Asp His Leu Gly Asn Arg
 465 470 475 480
 Arg Val Arg Ser Val Gly Glu Leu Thr Glu Asn Gln Phe Arg Ser Gly
 485 490 495
 Leu Ala Arg Val Glu Arg Ala Val Lys Glu Arg Leu Asn Gln Ala Glu
 500 505 510
 Ser Glu Asn Leu Met Pro His Asp Leu Ile Asn Ala Lys Pro Val Ser
 515 520 525
 Ala Ala Ile Lys Glu Phe Phe Gly Ser Ser Gln Leu Ser Gln Phe Met
 530 535 540
 Asp Gln Thr Asn Pro Leu Ser Glu Val Thr His Lys Arg Arg Val Ser
 545 550 555 560
 Ala Leu Gly Pro Gly Gly Leu Thr Arg Glu Arg Ala Gly Phe Glu Val
 565 570 575
 Arg Asp Val His Pro Thr His Tyr Gly Arg Val Cys Pro Ile Glu Thr

580
 585
 590
 Pro Glu Gly Pro Asn Ile Gly Leu Ile Asn Ser Leu Ser Val Tyr Ala
 595 600 605
 Arg Thr Asn Asp Tyr Gly Phe Leu Glu Thr Pro Tyr Arg Arg Val Ile
 610 615 620
 Asp Gly Lys Val Thr Glu Glu Ile Asp Tyr Leu Ser Ala Ile Glu Glu
 625 630 635 640
 Gly Arg Tyr Val Ile Ala Gln Ala Asn Ala Asp Leu Asp Ser Asp Gly
 645 650 655
 Asn Leu Ile Gly Asp Leu Val Thr Cys Arg Glu Lys Gly Glu Thr Ile
 660 665 670
 Met Ala Thr Pro Asp Arg Val Gln Tyr Met Asp Val Ala Thr Gly Gln
 675 680 685
 Val Val Ser Val Ala Ala Ser Leu Ile Pro Phe Leu Glu His Asp Asp
 690 695 700
 Ala Asn Arg Ala Leu Met Gly Ala Asn Met Gln Arg Gln Ala Val Pro
 705 710 715 720
 Cys Leu Arg Pro Glu Lys Pro Met Val Gly Thr Gly Ile Glu Arg Ser
 725 730 735
 Val Ala Val Asp Ser Ala Thr Ala Ile Val Ala Arg Arg Gly Gly Val
 740 745 750
 Val Glu Tyr Val Asp Ala Asn Arg Val Val Ile Arg Val His Asp Asp
 755 760 765
 Glu Ala Thr Ala Gly Glu Val Gly Val Asp Ile Tyr Asn Leu Val Lys
 770 775 780
 Phe Thr Arg Ser Asn Gln Ser Thr Asn Ile Asn Gln Arg Pro Ala Val
 785 790 795 800
 Lys Ala Gly Asp Val Leu Gln Arg Gly Asp Leu Val Ala Asp Gly Ala
 805 810 815
 Ser Thr Asp Phe Gly Glu Leu Ala Leu Gly Gln Asn Met Thr Ile Ala
 820 825 830
 Phe Met Pro Trp Asn Gly Tyr Asn Tyr Glu Asp Ser Ile Leu Ile Ser
 835 840 845
 Glu Lys Val Ala Ala Asp Asp Arg Tyr Thr Ser Ile His Ile Glu Glu
 850 855 860
 Leu Asn Val Val Ala Arg Asp Thr Lys Leu Gly Ala Glu Asp Ile Thr
 865 870 875 880
 Arg Asp Ile Pro Asn Leu Ser Glu Arg Met Gln Asn Arg Leu Asp Glu
 885 890 895
 Ser Gly Ile Val Tyr Ile Gly Ala Glu Val Glu Ala Gly Asp Val Leu
 900 905 910
 Val Gly Lys Val Thr Pro Lys Gly Glu Thr Gln Leu Thr Pro Glu Glu

915
 Lys Leu Leu Arg Ala Ile Phe Gly Glu Lys Ala Ser Asp Val Lys Asp
 930 935 940
 Thr Ser Leu Arg Met Pro Thr Gly Met Ser Gly Thr Val Ile Asp Val
 945 950 955 960
 Gln Val Phe Thr Arg Glu Gly Ile Gln Arg Asp Lys Arg Ala Gln Ser
 965 970 975
 Ile Ile Asp Ser Glu Leu Lys Arg Tyr Arg Leu Asp Leu Asn Asp Gln
 980 985 990
 Leu Arg Ile Phe Asp Asn Asp Ala Phe Asp Arg Ile Glu Arg Met Ile
 995 1000 1005
 Val Gly Gln Lys Ala Asn Gly Gly Pro Met Lys Leu Ala Lys Gly Ser
 1010 1015 1020
 Glu Ile Thr Thr Glu Tyr Leu Ala Gly Leu Pro Ser Arg His Asp Trp
 1025 1030 1035 1040
 Phe Asp Ile Arg Leu Thr Asp Glu Asp Leu Ala Lys Gln Leu Glu Leu
 1045 1050 1055
 Ile Lys Val Ser Leu Gln Gln Lys Arg Glu Glu Ala Asp Glu Leu Tyr
 1060 1065 1070
 Glu Ile Lys Lys Lys Lys Leu Thr Gln Gly Asp Glu Leu Gln Pro Gly
 1075 1080 1085
 Val Gln Lys Met Val Lys Val Phe Ile Ala Ile Lys Arg Arg Leu Gln
 1090 1095 1100
 Ala Gly Asp Lys Met Ala Gly Arg His Gly Asn Lys Gly Val Val Ser
 1105 1110 1115 1120
 Arg Ile Leu Pro Val Glu Asp Met Pro Tyr Met Ala Asp Gly Arg Pro
 1125 1130 1135
 Val Asp Ile Val Leu Asn Pro Leu Gly Val Pro Ser Arg Met Asn Ile
 1140 1145 1150
 Gly Gln Ile Leu Glu Val His Leu Gly Trp Ala Ala Lys Gly Ile Gly
 1155 1160 1165
 Glu Arg Ile Asp Arg Met Leu Lys Glu Gln Arg Lys Ala Gly Glu Leu
 1170 1175 1180
 Arg Glu Phe Leu Asn Arg Leu Tyr Asn Gly Ser Gly Lys Lys Glu Asp
 1185 1190 1195 1200
 Leu Asp Ala Leu Thr Asp Glu Glu Ile Ile Glu Leu Ala Ser Asn Leu
 1205 1210 1215
 Arg Lys Gly Ala Ser Phe Ala Ser Pro Val Phe Asp Gly Ala Lys Glu
 1220 1225 1230
 Ser Glu Ile Arg Glu Met Leu Asn Leu Ala Tyr Pro Ser Asp Asp Pro
 1235 1240 1245
 Glu Val Glu Lys Leu Gly Phe Asn Asp Ser Lys Thr Gln Ile Thr Leu

1250

1255

1260

Tyr Asp Gly Arg Ser Gly Glu Ala Phe Asp Arg Lys Val Thr Val Gly
 1265 1270 1275 1280
 Val Met His Tyr Leu Lys Leu His His Leu Val Asp Glu Lys Met His
 1285 1290 1295
 Ala Arg Ser Thr Gly Pro Tyr Ser Leu Val Thr Gln Gln Pro Leu Gly
 1300 1305 1310
 Gly Lys Ala Gln Phe Gly Gly Gln Arg Phe Gly Glu Met Glu Val Trp
 1315 1320 1325
 Ala Leu Glu Ala Tyr Gly Ala Ala Tyr Thr Leu Gln Glu Met Leu Thr
 1330 1335 1340
 Val Lys Ser Asp Asp Val Asn Gly Arg Thr Lys Met Tyr Glu Asn Ile
 1345 1350 1355 1360
 Val Lys Gly Glu His Lys Ile Asp Ala Gly Met Pro Glu Ser Phe Asn
 1365 1370 1375
 Val Leu Val Lys Glu Ile Arg Ser Leu Gly Leu Asp Ile Asp Leu Glu
 1380 1385 1390

Arg Tyr

<210> 18
 <211> 1391
 <212> PRT
 <213> Neisseria meningitidis

<400> 18
 Met Asn Leu Leu Asn Leu Phe Asn Pro Leu Gln Thr Ala Gly Met Glu
 1 5 10 15
 Glu Glu Phe Asp Ala Ile Lys Ile Gly Ile Ala Ser Pro Glu Thr Ile
 20 25 30
 Arg Ser Trp Ser Tyr Gly Glu Val Lys Lys Pro Glu Thr Ile Asn Tyr
 35 40 45
 Arg Thr Phe Lys Pro Glu Arg Asp Gly Leu Phe Cys Ala Lys Ile Phe
 50 55 60
 Gly Pro Val Lys Asp Tyr Glu Cys Leu Cys Gly Lys Tyr Lys Arg Leu
 65 70 75 80
 Lys Phe Lys Gly Val Thr Cys Glu Lys Cys Gly Val Glu Val Thr Leu
 85 90 95
 Ser Lys Val Arg Arg Glu Arg Met Gly His Ile Glu Leu Ala Ala Pro
 100 105 110
 Val Ala His Ile Trp Phe Leu Lys Ser Leu Pro Ser Arg Leu Gly Met
 115 120 125
 Val Leu Asp Met Thr Leu Arg Asp Ile Glu Arg Val Leu Tyr Phe Glu
 130 135 140
 Ala Phe Val Val Thr Asp Pro Gly Met Thr Pro Leu Gln Arg Arg Gln

145		150		155		160									
Leu	Leu	Thr	Glu	Asp	Asp	Tyr	Tyr	Asn	Lys	Leu	Asp	Glu	Tyr	Gly	Asp
			165						170					175	
Asp	Phe	Asp	Ala	Lys	Met	Gly	Ala	Glu	Gly	Ile	Arg	Glu	Leu	Leu	Arg
			180					185					190		
Thr	Leu	Asn	Val	Ala	Gly	Glu	Ile	Glu	Ile	Leu	Arg	Gln	Glu	Leu	Glu
		195					200					205			
Ser	Thr	Gly	Ser	Asp	Thr	Lys	Ile	Lys	Lys	Ile	Ala	Lys	Arg	Leu	Lys
	210					215					220				
Val	Leu	Glu	Ala	Phe	His	Arg	Ser	Gly	Met	Lys	Leu	Glu	Trp	Met	Ile
225					230					235					240
Met	Asp	Val	Leu	Pro	Val	Leu	Pro	Pro	Asp	Leu	Arg	Pro	Leu	Val	Pro
				245					250					255	
Leu	Asp	Gly	Gly	Arg	Phe	Ala	Thr	Ser	Asp	Leu	Asn	Asp	Leu	Tyr	Arg
			260					265					270		
Arg	Val	Ile	Asn	Arg	Asn	Asn	Arg	Leu	Lys	Arg	Leu	Leu	Glu	Leu	His
		275					280					285			
Ala	Pro	Asp	Ile	Ile	Val	Arg	Asn	Glu	Lys	Arg	Met	Leu	Gln	Glu	Ala
	290					295					300				
Val	Asp	Ser	Leu	Leu	Asp	Asn	Gly	Arg	Arg	Gly	Lys	Ala	Met	Thr	Gly
305					310					315					320
Ala	Asn	Lys	Arg	Pro	Leu	Lys	Ser	Leu	Ala	Asp	Met	Ile	Lys	Gly	Lys
				325					330					335	
Gly	Gly	Arg	Phe	Arg	Gln	Asn	Leu	Leu	Gly	Lys	Arg	Val	Asp	Tyr	Ser
			340					345					350		
Gly	Arg	Ser	Val	Ile	Thr	Val	Gly	Pro	Tyr	Leu	Arg	Leu	His	Gln	Cys
		355					360					365			
Gly	Leu	Pro	Lys	Lys	Met	Ala	Leu	Glu	Leu	Phe	Lys	Pro	Phe	Ile	Phe
	370					375					380				
His	Lys	Leu	Glu	Lys	Gln	Gly	Leu	Ala	Ser	Thr	Val	Lys	Ala	Ala	Lys
385					390					395					400
Lys	Leu	Val	Glu	Gln	Glu	Val	Pro	Glu	Val	Trp	Asp	Ile	Leu	Glu	Glu
				405					410					415	
Val	Ile	Arg	Glu	His	Pro	Ile	Met	Leu	Asn	Arg	Ala	Pro	Thr	Leu	His
			420					425					430		
Arg	Leu	Gly	Ile	Gln	Ala	Phe	Glu	Pro	Ile	Leu	Ile	Glu	Gly	Lys	Ala
		435					440					445			
Ile	Gln	Leu	His	Pro	Leu	Val	Cys	Ala	Ala	Phe	Asn	Ala	Asp	Phe	Asp
	450					455					460				
Gly	Asp	Gln	Met	Ala	Val	His	Val	Pro	Leu	Ser	Leu	Glu	Ala	Gln	Met
465					470					475					480
Glu	Ala	Arg	Thr	Leu	Met	Leu	Ala	Ser	Asn	Asn	Val	Leu	Ser	Pro	Ala

485		490		495
Asn Gly Glu Pro Ile Ile Val Pro Ser Gln Asp Ile Val Leu Gly Leu	500	505	510	
Tyr Tyr Met Thr Arg Asp Arg Ile Asn Ala Lys Gly Glu Gly Ser Leu	515	520	525	
Phe Ala Asp Val Lys Glu Val His Arg Ala Tyr His Thr Lys Gln Val	530	535	540	
Glu Leu Gly Thr Lys Ile Thr Val Arg Leu Arg Glu Trp Val Lys Asn	545	550	555	560
Glu Ala Gly Glu Phe Glu Pro Val Val Asn Arg Tyr Glu Thr Thr Val	565	570	575	
Gly Arg Ala Leu Leu Ser Glu Ile Leu Pro Lys Gly Leu Pro Phe Glu	580	585	590	
Tyr Val Asn Lys Ala Leu Lys Lys Lys Glu Ile Ser Lys Leu Ile Asn	595	600	605	
Ala Ser Phe Arg Leu Cys Gly Leu Arg Asp Thr Val Ile Phe Ala Asp	610	615	620	
His Leu Met Tyr Thr Gly Phe Gly Phe Ala Ala Lys Gly Gly Ile Ser	625	630	635	640
Ile Ala Val Asp Asp Met Glu Ile Pro Lys Glu Lys Ala Ala Leu Leu	645	650	655	
Ala Glu Ala Asn Ala Glu Val Lys Glu Ile Glu Asp Gln Tyr Arg Gln	660	665	670	
Gly Leu Val Thr Asn Gly Glu Arg Tyr Asn Lys Val Val Asp Ile Trp	675	680	685	
Gly Arg Ala Gly Asp Lys Ile Ala Lys Ala Met Met Asp Asn Leu Ser	690	695	700	
Lys Gln Lys Val Ile Asp Arg Ala Gly Asn Glu Val Asp Gln Glu Ser	705	710	715	720
Phe Asn Ser Ile Tyr Met Met Ala Asp Ser Gly Ala Arg Gly Ser Ala	725	730	735	
Ala Gln Ile Lys Gln Leu Ser Gly Met Arg Gly Leu Met Ala Lys Pro	740	745	750	
Asp Gly Ser Ile Ile Glu Thr Pro Ile Thr Ser Asn Phe Arg Glu Gly	755	760	765	
Leu Thr Val Leu Gln Tyr Phe Ile Ala Thr His Gly Ala Arg Lys Gly	770	775	780	
Leu Ala Asp Thr Ala Leu Lys Thr Ala Asn Ser Gly Tyr Leu Thr Arg	785	790	795	800
Arg Leu Val Asp Val Thr Gln Asp Leu Val Val Val Glu Asp Asp Cys	805	810	815	
Gly Thr Ser Asp Gly Phe Val Met Lys Ala Val Val Gln Gly Gly Asp				

820
 Val Ile Glu Ala Leu Arg Asp Arg Ile Leu Gly Arg Val Thr Ala Ser
 835 840 845
 Asp Val Val Asp Pro Ser Ser Gly Glu Thr Leu Val Glu Ala Gly Thr
 850 855 860
 Leu Leu Thr Glu Lys Leu Val Asp Met Ile Asp Gln Ser Gly Val Asp
 865 870 875 880
 Glu Val Lys Val Arg Thr Pro Ile Thr Cys Lys Thr Arg His Gly Leu
 885 890 895
 Cys Ala His Cys Tyr Gly Arg Asp Leu Ala Arg Gly Lys Leu Val Asn
 900 905 910
 Ala Gly Glu Ala Val Gly Val Ile Ala Ala Gln Ser Ile Gly Glu Pro
 915 920 925
 Gly Thr Gln Leu Thr Met Arg Thr Phe His Ile Gly Gly Ala Ala Ser
 930 935 940
 Arg Ala Ala Ala Ala Ser Gln Val Glu Ala Lys Ser Asn Gly Thr Ala
 945 950 955 960
 Arg Phe Ser Ser Gln Met Arg Tyr Val Ala Asn Asn Lys Gly Glu Leu
 965 970 975
 Val Val Ile Gly Arg Ser Cys Glu Val Val Ile His Asp Asp Ile Gly
 980 985 990
 Arg Glu Arg Glu Arg His Lys Val Pro Tyr Gly Ala Ile Leu Leu Val
 995 1000 1005
 Gln Asp Gly Met Ala Ile Lys Ala Gly Gln Thr Leu Ala Thr Trp Asp
 1010 1015 1020
 Pro His Thr Arg Pro Met Ile Thr Glu His Ala Gly Met Val Lys Phe
 1025 1030 1035 1040
 Glu Asn Val Glu Glu Gly Val Thr Val Ala Lys Gln Thr Asp Asp Val
 1045 1050 1055
 Thr Gly Leu Ser Thr Leu Val Val Ile Asp Gly Lys Arg Arg Ser Ser
 1060 1065 1070
 Ser Ala Ser Lys Leu Leu Arg Pro Thr Val Lys Leu Leu Asp Glu Asn
 1075 1080 1085
 Gly Val Glu Ile Cys Ile Pro Gly Thr Ser Thr Pro Val Ser Met Ala
 1090 1095 1100
 Phe Pro Val Gly Ala Val Ile Thr Val Arg Glu Gly Gln Glu Ile Gly
 1105 1110 1115 1120
 Lys Gly Asp Val Leu Ala Arg Ile Pro Gln Ala Ser Ser Lys Thr Arg
 1125 1130 1135
 Asp Ile Thr Gly Gly Leu Pro Arg Val Ala Glu Leu Phe Glu Ala Arg
 1140 1145 1150
 Val Pro Lys Asp Ala Gly Met Leu Ala Glu Ile Thr Gly Thr Val Ser

1155

Phe Gly Lys Glu Thr Lys Gly Lys Gln Arg Leu Ile Val Thr Asp Val
1170 1175 1180
Asp Gly Val Ala Tyr Glu Thr Leu Ile Ser Lys Glu Lys Gln Ile Leu
1185 1190 1195 1200
Val His Asp Gly Gln Val Val Asn Arg Gly Glu Thr Ile Val Asp Gly
1205 1210 1215
Ala Val Asp Pro His Asp Ile Leu Arg Leu Gln Gly Ile Glu Ala Leu
1220 1225 1230
Ala Arg Tyr Ile Val Gln Glu Val Gln Glu Val Tyr Arg Leu Gln Gly
1235 1240 1245
Val Lys Ile Ser Asp Lys His Ile Glu Val Ile Ile Arg Gln Met Leu
1250 1255 1260
Arg Arg Val Asn Ile Ala Asp Ala Gly Glu Thr Gly Phe Ile Thr Gly
1265 1270 1275 1280
Glu Gln Val Glu Arg Gly Asp Val Met Ala Ala Asn Glu Lys Ala Leu
1285 1290 1295
Glu Glu Gly Lys Glu Pro Ala Arg Tyr Glu Asn Val Leu Leu Gly Ile
1300 1305 1310
Thr Lys Ala Ser Leu Ser Thr Asp Ser Phe Ile Ser Ala Ala Ser Phe
1315 1320 1325
Gln Glu Thr Thr Arg Val Leu Thr Glu Ala Ala Ile Met Gly Lys Gln
1330 1335 1340
Asp Glu Leu Arg Gly Leu Lys Glu Asn Val Ile Val Gly Arg Leu Ile
1345 1350 1355 1360
Pro Ala Gly Thr Gly Leu Thr Tyr His Arg Ser Arg His Gln Gln Trp
1365 1370 1375
Gln Glu Val Glu Gln Glu Thr Ala Glu Thr Gln Val Thr Asp Glu
1380 1385 1390

<210> 19
<211> 156
<212> PRT
<213> Neisseria meningitidis

<400> 19
Met Pro Arg Arg Arg Glu Val Pro Lys Arg Asp Val Leu Pro Asp Pro
1 5 10 15
Lys Phe Gly Ser Val Glu Leu Thr Lys Phe Met Asn Val Leu Met Ile
20 25 30
Asp Gly Lys Lys Ser Val Ala Glu Arg Ile Val Tyr Gly Ala Leu Glu
35 40 45
Gln Ile Glu Lys Lys Thr Gly Lys Val Ala Ile Glu Val Phe Asn Glu
50 55 60
Ala Ile Ala Asn Ala Lys Pro Ile Val Glu Val Lys Ser Arg Arg Val

65	70								75								80							
Gly	Gly	Ala	Asn	Tyr 85	Gln	Val	Pro	Val	Glu 90	Val	Arg	Pro	Ser	Arg 95	Arg									
Leu	Ala	Leu	Ala 100	Met	Arg	Trp	Val	Arg 105	Asp	Ala	Ala	Arg	Lys 110	Arg	Gly									
Glu	Lys	Ser 115	Met	Asp	Leu	Arg	Leu 120	Ala	Gly	Glu	Leu	Ile 125	Asp	Ala	Ser									
Glu	Gly 130	Arg	Gly	Gly	Ala	Leu 135	Lys	Lys	Arg	Glu	Glu 140	Val	His	Arg	Met									
Ala 145	Glu	Ala	Asn	Lys	Ala 150	Phe	Ser	His	Phe	Arg 155	Phe													
<210>		20																						
<211>		701																						
<212>		PRT																						
<213>		Neisseria meningitidis																						
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Ala	His	Ile	Asp 20	Ala	Gly	Lys	Thr 25	Thr	Thr	Thr	Glu	Arg	Ile 30	Leu	Phe									
Tyr	Thr	Gly 35	Leu	Thr	His	Lys	Leu 40	Gly	Glu	Val	His	Asp 45	Gly	Ala	Ala									
Thr	Thr 50	Asp	Tyr	Met	Glu	Gln 55	Glu	Gln	Glu	Arg	Gly 60	Ile	Thr	Ile	Thr									
Ser 65	Ala	Ala	Val	Thr	Ser 70	Tyr	Trp	Ser	Gly	Met 75	Ala	Lys	Gln	Phe	Pro 80									
Glu	His	Arg	Phe	Asn 85	Ile	Ile	Asp	Thr	Pro 90	Gly	His	Val	Asp	Phe 95	Thr									
Val	Glu	Val	Glu 100	Arg	Ser	Met	Arg	Val 105	Leu	Asp	Gly	Ala	Val 110	Met	Val									
Tyr	Cys	Ala 115	Val	Gly	Gly	Val	Gln 120	Pro	Gln	Ser	Glu	Thr 125	Val	Trp	Arg									
Gln	Ala 130	Asn	Lys	Tyr	Gln	Val 135	Pro	Arg	Leu	Ala	Phe 140	Val	Asn	Lys	Met									
Asp 145	Arg	Gln	Gly	Ala	Asn 150	Phe	Phe	Arg	Val	Val 155	Glu	Gln	Met	Lys	Thr 160									
Arg	Leu	Arg	Ala	Asn 165	Pro	Val	Pro	Ile	Val 170	Ile	Pro	Val	Gly	Ala 175	Glu									
Asp	Asn	Phe	Ser 180	Gly	Val	Val	Asp	Leu 185	Leu	Lys	Met	Lys	Ser 190	Ile	Ile									
Trp	Asn	Glu 195	Val	Asp	Lys	Gly	Thr 200	Thr	Phe	Thr	Tyr	Gly 205	Asp	Ile	Pro									
Ala	Glu	Leu	Val	Glu	Thr	Ala	Glu	Glu	Trp	Arg	Gln	Asn	Met	Ile	Glu									

210 215 220
 Ala Ala Ala Glu Ala Ser Glu Glu Leu Met Asp Lys Tyr Leu Gly Gly
 225 230 235 240
 Asp Glu Leu Thr Glu Glu Glu Ile Val Gly Ala Leu Arg Gln Arg Thr
 245 250 255
 Leu Ala Gly Glu Ile Gln Pro Met Leu Cys Gly Ser Ala Phe Lys Asn
 260 265 270
 Lys Gly Val Gln Arg Met Leu Asp Ala Val Val Glu Leu Leu Pro Ala
 275 280 285
 Pro Thr Asp Ile Pro Pro Val Gln Gly Val Asn Pro Asn Thr Glu Glu
 290 295 300
 Ala Asp Ser Arg Gln Ala Ser Asp Glu Glu Lys Phe Ser Ala Leu Ala
 305 310 315 320
 Phe Lys Met Leu Asn Asp Lys Tyr Val Gly Gln Leu Thr Phe Ile Arg
 325 330 335
 Val Tyr Ser Gly Val Val Lys Ser Gly Asp Thr Val Leu Asn Ser Val
 340 345 350
 Lys Gly Thr Arg Glu Arg Ile Gly Arg Leu Val Gln Met Thr Ala Ala
 355 360 365
 Asp Arg Thr Glu Ile Glu Glu Val Arg Ala Gly Asp Ile Ala Ala Ala
 370 375 380
 Ile Gly Leu Lys Asp Val Thr Thr Gly Glu Thr Leu Cys Ala Glu Ser
 385 390 395 400
 Ala Pro Ile Ile Leu Glu Arg Met Glu Phe Pro Glu Pro Val Ile His
 405 410 415
 Ile Ala Val Glu Pro Lys Thr Lys Ala Asp Gln Glu Lys Met Gly Ile
 420 425 430
 Ala Leu Asn Arg Leu Ala Lys Glu Asp Pro Ser Phe Arg Val Arg Thr
 435 440 445
 Asp Glu Glu Ser Gly Gln Thr Ile Ile Ser Gly Met Gly Glu Leu His
 450 455 460
 Leu Glu Ile Ile Val Asp Arg Met Lys Arg Glu Phe Gly Val Glu Ala
 465 470 475 480
 Asn Ile Gly Ala Pro Gln Val Ala Tyr Arg Glu Thr Ile Arg Lys Ala
 485 490 495
 Val Lys Ala Glu Tyr Lys His Ala Lys Gln Ser Gly Gly Lys Gly Gln
 500 505 510
 Tyr Gly His Val Val Ile Glu Met Glu Pro Met Glu Pro Gly Gly Glu
 515 520 525
 Gly Tyr Glu Phe Ile Asp Glu Ile Lys Gly Gly Val Ile Pro Arg Glu
 530 535 540
 Phe Ile Pro Ser Val Asp Lys Gly Ile Arg Asp Thr Leu Pro Asn Gly

545					550					555					560
Ile	Val	Ala	Gly	Tyr 565	Pro	Val	Val	Asp	Val 570	Arg	Ile	Arg	Leu	Val 575	Phe
Gly	Ser	Tyr	His 580	Asp	Val	Asp	Ser	Ser 585	Gln	Leu	Ala	Phe	Glu 590	Leu	Ala
Ala	Ser	Gln 595	Ala	Phe	Lys	Glu	Gly 600	Met	Arg	Gln	Ala	Ser 605	Pro	Ala	Leu
Leu	Glu 610	Pro	Ile	Met	Ala	Val 615	Glu	Val	Glu	Thr	Pro 620	Glu	Glu	Tyr	Met
Gly 625	Asp	Val	Met	Gly	Asp 630	Leu	Asn	Arg	Arg	Arg 635	Gly	Val	Val	Leu	Gly 640
Met	Asp	Asp	Asp	Gly 645	Ile	Gly	Gly	Lys	Lys 650	Val	Arg	Ala	Glu	Val 655	Pro
Leu	Ala	Glu	Met 660	Phe	Gly	Tyr	Ser	Thr 665	Asp	Leu	Arg	Ser 670	Ala	Thr	Gln
Gly	Arg	Ala 675	Thr	Tyr	Ser	Met	Glu 680	Phe	Lys	Lys	Tyr	Ser 685	Glu	Ala	Pro
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<212> PRT
<213> Neisseria meningitidis
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Leu Ile Asp Arg Ser Ala Gln Glu Ile Val Glu Thr Ala Lys Arg Thr
20 25 30
Gly Ala Val Val Lys Gly Pro Ile Pro Leu Pro Thr Lys Ile Glu Arg
35 40 45
Phe Asn Ile Leu Arg Ser Pro His Val Asn Lys Thr Ser Arg Glu Gln
50 55 60
Leu Glu Ile Arg Thr His Leu Arg Leu Met Asp Ile Val Asp Trp Thr
65 70 75 80
Asp Lys Thr Thr Asp Ala Leu Met Lys Leu Asp Leu Pro Ala Gly Val
85 90 95
Asp Val Glu Ile Lys Val Gln
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<213> Neisseria meningitidis
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<400> 22
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SEQLIST_PP019737.0004.txt

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 Asp Glu Gln Gly Val Ser Val Pro Val Thr Val Leu Asp Met Ser Ala
 20 25 30
 Asn Arg Val Thr Gln Val Lys Ser Lys Asp Thr Asp Gly Tyr Thr Ala
 35 40 45
 Val Gln Val Thr Phe Gly Gln Lys Lys Ala Asn Arg Val Asn Lys Ala
 50 55 60
 Glu Ala Gly His Phe Ala Lys Ala Gly Val Glu Ala Gly Arg Gly Leu
 65 70 75 80
 Ile Glu Phe Ala Leu Thr Glu Glu Lys Leu Ala Glu Leu Lys Ala Gly
 85 90 95
 Asp Glu Ile Thr Val Ser Met Phe Glu Val Gly Gln Leu Val Asp Val
 100 105 110
 Thr Gly Thr Ser Lys Gly Lys Gly Phe Ser Gly Thr Ile Lys Arg His
 115 120 125
 Asn Phe Gly Ala Gln Arg Thr Ser His Gly Asn Ser Arg Ser His Arg
 130 135 140
 Val Pro Gly Ser Ile Gly Met Ala Gln Asp Pro Gly Arg Val Phe Pro
 145 150 155 160
 Gly Lys Arg Met Ala Gly Gln Tyr Gly Asn Thr Lys Ala Thr Val Gln
 165 170 175
 Lys Leu Glu Val Val Arg Val Asp Ala Glu Arg Gln Leu Leu Leu Val
 180 185 190
 Lys Gly Ala Val Pro Gly Ala Val Asn Ser Asp Val Val Val Arg Pro
 195 200 205
 Ser Val Lys Val Gly Ala
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<210> 23
 <211> 206
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 <213> Neisseria meningitidis

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 1 5 10 15
 Ser Val Ser Asp Ala Leu Phe Ala Arg Glu Tyr Asn Glu Ala Leu Val
 20 25 30
 His Gln Leu Val Asn Ala Tyr Leu Ala Asn Ala Arg Ser Gly Asn Arg
 35 40 45
 Ala Gln Lys Thr Arg Ala Glu Val Lys His Ser Thr Lys Lys Pro Trp
 50 55 60
 Arg Gln Lys Gly Thr Gly Arg Ala Arg Ser Gly Met Thr Ser Ser Pro
 65 70 75 80
 Leu Trp Arg Lys Gly Gly Arg Ala Phe Pro Asn Lys Pro Asp Glu Asn
 Page 32

SEQLIST_PP019737.0004.txt

85

90

95

Phe Thr Gln Lys Val Asn Arg Lys Met Tyr Arg Ala Gly Met Ala Thr
100 105 110
Ile Leu Ser Gln Leu Thr Arg Asp Glu Arg Leu Phe Ala Ile Glu Ala
115 120 125
Leu Thr Ala Glu Thr Pro Lys Thr Lys Val Phe Ala Glu Gln Val Lys
130 135 140
Asn Leu Gly Leu Glu Gln Val Leu Phe Val Thr Lys Gln Leu Asp Glu
145 150 155 160
Asn Val Tyr Leu Ala Ser Arg Asn Leu Pro Asn Val Leu Val Leu Glu
165 170 175
Ala Gln Gln Val Asp Pro Tyr Ser Leu Leu Arg Tyr Lys Lys Val Ile
180 185 190
Ile Thr Lys Asp Ala Val Ala Gln Leu Glu Glu Gln Trp Val
195 200 205

<210> 24
<211> 104
<212> PRT
<213> Neisseria meningitidis

<400> 24
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Glu Lys Ser Asn Val Leu Ala Glu Lys Arg Asn Gln Met Thr Phe Lys
20 25 30
Val Leu Ala Asn Ala Thr Lys Pro Glu Ile Lys Ala Ala Val Glu Leu
35 40 45
Leu Phe Gly Val Gln Val Ala Asp Val Thr Thr Val Thr Ile Lys Gly
50 55 60
Lys Val Lys Arg Phe Gly Arg Thr Leu Gly Arg Arg Ser Asp Val Lys
65 70 75 80
Lys Ala Tyr Val Ser Leu Ala Ala Gly Gln Glu Leu Asp Leu Glu Ala
85 90 95
Ala Ala Ala Ala Ala Asp Lys Glu
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<213> Neisseria meningitidis

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Val Lys Gln Phe Gly Tyr Lys Ser Val Met Glu Val Pro Arg Ile Glu
20 25 30
Lys Ile Thr Leu Asn Met Gly Val Gly Glu Ala Val Ala Asp Lys Lys
Page 33

35

40

45

Val Met Glu His Ala Val Ser Asp Leu Glu Lys Ile Ala Gly Gln Lys
 50 55 60
 Pro Val Val Thr Val Ala Arg Lys Ser Ile Ala Gly Phe Lys Ile Arg
 65 70 75 80
 Asp Asn Tyr Pro Val Gly Cys Lys Val Thr Leu Arg Arg Asp Gln Met
 85 90 95
 Phe Glu Phe Leu Asp Arg Leu Ile Thr Ile Ala Leu Pro Arg Val Arg
 100 105 110
 Asp Phe Arg Gly Val Ser Gly Lys Ser Phe Asp Gly Arg Gly Asn Tyr
 115 120 125
 Asn Met Gly Val Arg Glu Gln Ile Ile Phe Pro Glu Ile Glu Tyr Asp
 130 135 140
 Lys Ile Asp Ala Leu Arg Gly Leu Asn Ile Thr Ile Thr Thr Thr Ala
 145 150 155 160
 Lys Thr Asp Glu Glu Ala Lys Ala Leu Leu Ser Leu Phe Lys Phe Pro
 165 170 175

Phe Lys Gly

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 <211> 130
 <212> PRT
 <213> Neisseria meningitidis

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 20 25 30
 Lys Cys Ala Ile Ala Lys Val Leu Lys Glu Glu Gly Tyr Ile Glu Asp
 35 40 45
 Phe Ala Val Ser Ser Asp Val Lys Ser Ile Leu Glu Ile Gln Leu Lys
 50 55 60
 Tyr Tyr Ala Gly Arg Pro Val Ile Glu Gln Ile Lys Arg Val Ser Arg
 65 70 75 80
 Pro Gly Leu Arg Ile Tyr Lys Ala Ser Ser Glu Ile Pro Ser Val Met
 85 90 95
 Asn Gly Leu Gly Ile Ala Ile Val Ser Thr Ser Lys Gly Val Met Thr
 100 105 110
 Asp Arg Lys Ala Arg Ser Gln Gly Val Gly Gly Glu Leu Leu Cys Ile
 115 120 125
 Val Ala
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<210> 27

SEQLIST_PP019737.0004.txt

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20 25 30
Leu Ser Phe Pro Leu His Ser Asp Val Ala Ile Glu Phe Asn Asp Gly
35 40 45
Lys Leu Thr Phe Val Ala Asn Asn Ser Ser Lys Gln Ala Asn Ala Met
50 55 60
Ser Gly Thr Ala Arg Ala Leu Val Ser Asn Met Val Lys Gly Val Ser
65 70 75 80
Glu Gly Phe Glu Lys Arg Leu Gln Leu Ile Gly Val Gly Tyr Arg Ala
85 90 95
Gln Ala Gln Gly Lys Ile Leu Asn Leu Ser Leu Gly Phe Ser His Pro
100 105 110
Ile Val Tyr Glu Met Pro Glu Gly Val Ser Val Gln Thr Pro Ser Gln
115 120 125
Thr Glu Ile Val Leu Thr Gly Ser Asp Lys Gln Val Val Gly Gln Val
130 135 140
Ala Ala Glu Ile Arg Ala Phe Arg Ala Pro Glu Pro Tyr Lys Gly Lys
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Gly Val Arg Tyr Val Gly Glu Val Val Val Met Lys Glu Ala Lys Lys
165 170 175

Lys

<210> 28
<211> 172
<212> PRT
<213> Neisseria meningitidis

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20 25 30
Met Ala Phe Ser Ala Leu Thr Val Val Gly Asp Gly Asp Gly Arg Ile
35 40 45
Gly Met Gly Lys Gly Lys Ser Lys Glu Val Pro Val Ala Val Gln Lys
50 55 60
Ala Met Asp Gln Ala Arg Arg Ser Met Ile Lys Val Pro Leu Lys Asn
65 70 75 80
Gly Thr Ile His His Glu Val Ile Gly Arg His Gly Ala Thr Lys Val

85

90

95

Phe Met Gln Pro Ala Lys Glu Gly Ser Gly Val Lys Ala Gly Gly Pro
100 105 110
Met Arg Leu Val Phe Asp Ala Met Gly Ile His Asn Ile Ser Ala Lys
115 120 125
Val His Gly Ser Thr Asn Pro Tyr Asn Ile Val Arg Ala Thr Leu Asp
130 135 140
Gly Leu Ser Lys Leu His Thr Pro Ala Asp Ile Ala Ala Lys Arg Gly
145 150 155 160
Leu Thr Val Glu Asp Ile Leu Gly Val Asn His Gly
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<213> Neisseria meningitidis

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20 25 30
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35 40 45
Ser Ser Met Asn Gly Phe Ala Pro Thr Glu Val Ala Ile Ala Gly Val
50 55 60
Leu His Glu Tyr Ser Thr Val Asp Gly Ile Gln Glu Asp Val Val Asp
65 70 75 80
Ile Leu Leu Asn Ile Lys Gly Ile Val Phe Lys Leu His Gly Arg Ser
85 90 95
Gln Val Gln Leu Val Leu Lys Lys Ser Gly Ser Gly Val Val Ser Ala
100 105 110
Gly Asp Ile Glu Leu Pro His Asp Val Glu Ile Leu Asn Pro Gly His
115 120 125
Val Ile Cys His Leu Ala Asp Asn Gly Gln Ile Glu Met Glu Ile Lys
130 135 140
Val Glu Gln Gly Arg Gly Tyr Gln Ser Val Ser Gly Arg Gln Val Val
145 150 155 160
Arg Asp Glu Asn Arg Gln Ile Gly Ala Ile Gln Leu Asp Ala Ser Phe
165 170 175
Ser Pro Ile Ser Arg Val Ser Phe Glu Val Glu Pro Ala Arg Val Glu
180 185 190
Gln Arg Thr Asp Leu Asp Lys Leu Val Leu Asp Ile Glu Thr Asp Gly
195 200 205
Ser Ile Asp Pro Glu Glu Ala Val Arg Ser Ala Ala Arg Ile Leu Ile

210 215 220
 Asp Gln Met Ser Ile Phe Ala Asp Leu Gln Gly Thr Pro Val Glu Glu
 225 230 235 240
 Val Glu Glu Lys Ala Pro Pro Ile Asp Pro Val Leu Leu Arg Pro Val
 245 250 255
 Asp Asp Leu Glu Leu Thr Val Arg Ser Ala Asn Cys Leu Lys Ala Glu
 260 265 270
 Asp Ile Tyr Tyr Ile Gly Asp Leu Ile Gln Arg Thr Glu Thr Glu Leu
 275 280 285
 Leu Lys Thr Pro Asn Leu Gly Arg Lys Ser Leu Asn Glu Ile Lys Glu
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 Val Leu Ala Ser Lys Gly Leu Thr Leu Gly Ser Lys Leu Glu Ala Trp
 305 310 315 320
 Pro Pro Val Gly Leu Glu Lys Pro
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<210> 30
 <211> 271
 <212> PRT
 <213> Neisseria meningitidis

<400> 30
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 20 25 30
 Lys Thr Ala Val Ile Asp Phe Asp Val Gly Leu Arg Asn Leu Asp Leu
 35 40 45
 Ile Met Gly Cys Glu Arg Arg Val Val Tyr Asp Leu Ile Asn Val Ile
 50 55 60
 Gln Gly Glu Ala Thr Leu Asn Gln Ala Leu Ile Lys Asp Lys Asn Cys
 65 70 75 80
 Glu Asn Leu Phe Ile Leu Pro Ala Ser Gln Thr Arg Asp Lys Asp Ala
 85 90 95
 Leu Thr Arg Glu Gly Val Glu Lys Val Met Gln Glu Leu Ser Gly Lys
 100 105 110
 Lys Met Gly Phe Glu Tyr Ile Ile Cys Asp Ser Pro Ala Gly Ile Glu
 115 120 125
 Gln Gly Ala Leu Met Ala Leu Tyr Phe Ala Asp Glu Ala Ile Val Thr
 130 135 140
 Thr Asn Pro Glu Val Ser Ser Val Arg Asp Ser Asp Arg Ile Leu Gly
 145 150 155 160
 Ile Leu Gln Ser Lys Ser His Lys Ala Glu Gln Gly Gly Ser Val Lys
 165 170 175
 Glu His Leu Leu Ile Thr Arg Tyr Ser Pro Glu Arg Val Ala Lys Gly
 Page 37

180

185

190

Glu Met Leu Ser Val Gln Asp Ile Cys Asp Ile Leu His Ile Pro Leu
195 200 205

Leu Gly Val Ile Pro Glu Ser Gln Asn Val Leu Gln Ala Ser Asn Ser
210 215 220

Gly Glu Pro Val Ile His Gln Asp Ser Val Ala Ala Ser Glu Ala Tyr
225 230 235 240

Lys Asp Val Ile Ala Arg Leu Leu Gly Glu Asn Arg Glu Met Arg Phe
245 250 255

Leu Glu Ala Glu Lys Lys Ser Phe Phe Lys Arg Leu Phe Gly Gly
260 265 270

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<211> 306

<212> PRT

<213> Neisseria meningitidis

<400> 31

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20 25 30

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35 40 45

Asp Arg Ser Ser Asn Asp Ile Ile Thr Thr Glu Ala Gly Glu Arg Ile
50 55 60

Val Ala Gln Ala Arg Lys Val Leu Glu Glu Ala Glu Leu Ile Arg His
65 70 75 80

Leu Ala Asn Glu Glu Gln Asn Glu Leu Glu Gly Ala Phe Lys Leu Gly
85 90 95

Leu Ile Phe Thr Val Ala Pro Tyr Leu Leu Pro Lys Leu Ile Val Ser
100 105 110

Leu Arg Arg Thr Ala Pro Lys Met Pro Leu Met Leu Glu Glu Asn Tyr
115 120 125

Thr His Thr Leu Thr Glu Ser Leu Lys Arg Gly Asp Val Asp Ala Ile
130 135 140

Ile Val Ala Glu Pro Phe Gln Glu Pro Gly Ile Val Thr Glu Pro Leu
145 150 155 160

Tyr Asp Glu Pro Phe Phe Val Ile Val Pro Lys Gly His Ser Phe Glu
165 170 175

Glu Leu Asp Ala Val Ser Pro Arg Met Leu Gly Glu Glu Gln Val Leu
180 185 190

Leu Leu Thr Glu Gly Asn Cys Met Arg Asp Gln Val Leu Ser Ser Cys
195 200 205

Ser Glu Leu Ala Ala Lys Gln Arg Ile Gln Gly Leu Thr Asn Thr Leu
Page 38

210 215 220
 Gln Gly Ser Ser Ile Asn Thr Ile Arg His Met Val Ala Ser Gly Leu
 225 230 235 240
 Ala Ile Ser Val Leu Pro Ala Thr Ala Leu Thr Glu Asn Asp His Met
 245 250 255
 Leu Phe Ser Ile Ile Pro Phe Glu Gly Thr Pro Pro Ser Arg Arg Val
 260 265 270
 Val Leu Ala Tyr Arg Arg Asn Phe Val Arg Pro Lys Ala Leu Ser Ala
 275 280 285
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 290 295 300
 Cys Asp
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 <212> PRT
 <213> Neisseria meningitidis

<400> 32
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 Ala Gln Thr Leu Leu Leu Ser His Asn Ile Glu Thr Leu Gly Gln Met
 35 40 45
 Ser Cys Asn Pro Ser Ile Gly Gly Ile Gly Lys Gly His Leu Val Arg
 50 55 60
 Glu Leu Asp Ala Leu Gly Gly Ala Met Ala Leu Ala Thr Asp Lys Ser
 65 70 75 80
 Gly Ile Gln Phe Arg Arg Leu Asn Ala Ser Lys Gly Ala Ala Val Arg
 85 90 95
 Ala Thr Arg Ala Gln Ala Asp Arg Ile Leu Tyr Lys Ala Ala Ile Arg
 100 105 110
 Glu Met Leu Glu Asn Gln Glu Asn Leu Asp Leu Phe Gln Gln Ala Val
 115 120 125
 Glu Asp Val Thr Leu Asp Gly Glu Arg Ile Ser Gly Val Ile Thr Ala
 130 135 140
 Met Gly Val Glu Phe Lys Ala Arg Ala Val Val Leu Thr Ala Gly Thr
 145 150 155 160
 Phe Leu Ser Gly Lys Ile His Ile Gly Leu Glu Asn Tyr Glu Gly Gly
 165 170 175
 Arg Ala Gly Asp Pro Ala Ala Lys Ser Leu Gly Gly Arg Leu Arg Glu
 180 185 190
 Leu Lys Leu Pro Gln Gly Arg Leu Lys Thr Gly Thr Pro Pro Arg Ile
 Page 39

195

Asp Gly Arg Thr Ile Asp Phe Ser Gln Leu Thr Glu Gln Pro Gly Asp
210 215 220
Thr Pro Val Pro Val Met Ser Val Arg Gly Asn Ala Asp Met His Pro
225 230 235 240
Arg Gln Val Ser Cys Trp Ile Thr His Thr Asn Thr Gln Thr His Asp
245 250 255
Ile Ile Arg Ser Gly Phe Asp Arg Ser Pro Met Phe Thr Gly Lys Ile
260 265 270
Glu Gly Val Gly Pro Arg Tyr Cys Pro Ser Ile Glu Asp Lys Ile Asn
275 280 285
Arg Phe Ala Asp Lys Asp Ser His Gln Ile Phe Leu Glu Pro Glu Gly
290 295 300
Leu Thr Thr His Glu Tyr Tyr Pro Asn Gly Ile Ser Thr Ser Leu Pro
305 310 315 320
Phe Asp Ile Gln Ile Ala Leu Val Arg Ser Met Lys Gly Leu Glu Asn
325 330 335
Ala His Ile Leu Arg Pro Gly Tyr Ala Ile Glu Tyr Asp Tyr Phe Asp
340 345 350
Pro Arg Asn Leu Lys Ala Ser Leu Glu Thr Lys Thr Ile Ala Gly Leu
355 360 365
Phe Phe Ala Gly Gln Ile Asn Gly Thr Thr Gly Tyr Glu Glu Ala Ala
370 375 380
Ala Gln Gly Leu Leu Ala Gly Ala Asn Ala Val Gln Tyr Val Arg Gly
385 390 395 400
Gln Asp Pro Leu Leu Leu Arg Arg Glu Gln Ala Tyr Leu Gly Val Leu
405 410 415
Val Asp Asp Leu Ile Thr Lys Gly Val Asn Glu Pro Tyr Arg Met Phe
420 425 430
Thr Ser Arg Ala Glu Tyr Arg Leu Gln Leu Arg Glu Asp Asn Ala Asp
435 440 445
Met Arg Leu Thr Glu Asp Gly Tyr Lys Ile Gly Leu Val Ser Glu Ala
450 455 460
Gln Trp Arg Met Phe Asn Glu Lys Arg Glu Ala Val Glu Arg Glu Ile
465 470 475 480
Gln Arg Leu Lys Thr Thr Trp Tyr Thr Pro Gln Lys Leu Ala Glu Gly
485 490 495
Glu Gln Ile Arg Val Phe Gly Gln Lys Leu Ser Arg Glu Ala Asn Leu
500 505 510
His Asp Leu Leu Arg Arg Pro Asn Leu Asp Tyr Ala Ala Leu Met Thr
515 520 525
Leu Glu Gly Ala Met Pro Ser Glu Asn Leu Ser Ala Glu Val Ile Glu

530

535

540

Gln Val Glu Ile Gln Val Lys Tyr Gln Gly Tyr Ile Asp Arg Gln Asn
545 550 555 560
Glu Glu Ile Asp Ser Arg Arg Asp Ile Glu Thr Leu Lys Leu Pro Asp
565 570 575
Gly Ile Asp Tyr Gly Lys Val Lys Gly Leu Ser Ala Glu Val Gln Gln
580 585 590
Lys Leu Asn Gln His Lys Pro Glu Thr Val Gly Gln Ala Ser Arg Ile
595 600 605
Ser Gly Val Thr Pro Ala Ala Val Ala Leu Leu Met Val His Leu Lys
610 615 620
Arg Gly Phe Lys Asp Ala Lys
625 630

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<212> PRT
<213> Neisseria meningitidis

<400> 33
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Gly Lys Glu Gln Arg Lys Gly Asn Ile Tyr Lys Gly Ile Ile Thr Arg
35 40 45

Ile Glu Pro Ser Leu Glu Ala Cys Phe Val Asp Tyr Gly Thr Asp Arg
50 55 60

His Gly Phe Leu Pro Phe Lys Glu Val Ser Arg Ser Tyr Phe Gln Asp
65 70 75 80

Tyr Glu Gly Gly Arg Ala Arg Ile Gln Asp Val Leu Lys Glu Gly Met
85 90 95

Glu Val Ile Val Gln Val Glu Lys Asp Glu Arg Gly Asn Lys Gly Ala
100 105 110

Ala Leu Thr Thr Phe Ile Ser Leu Ala Gly Arg Tyr Leu Val Leu Met
115 120 125

Pro Asn Asn Pro Arg Gly Gly Gly Val Ser Arg Arg Ile Glu Gly Glu
130 135 140

Glu Arg Gln Glu Leu Lys Ala Ala Met Ala Glu Leu Asp Ile Pro Asn
145 150 155 160

Gly Met Ser Ile Ile Ala Arg Thr Ala Gly Ile Gly Arg Ser Ala Glu
165 170 175

Glu Leu Glu Trp Asp Leu Asn Tyr Leu Lys Gln Leu Trp Gln Ala Ile
180 185 190

Glu Glu Ala Gly Lys Ala His His Asp Pro Tyr Leu Leu Phe Met Glu
Page 41

195

200

205

Ser Ser Leu Leu Ile Arg Ala Ile Arg Asp Tyr Phe Arg Pro Asp Ile
 210 215 220
 Gly Glu Ile Leu Val Asp Asn Gln Glu Val Tyr Asp Gln Val Ala Glu
 225 230 235 240
 Phe Met Ser Tyr Val Met Pro Gly Asn Ile Gly Arg Leu Lys Leu Tyr
 245 250 255
 Glu Asp His Thr Pro Leu Phe Ser Arg Phe Gln Ile Glu His Gln Ile
 260 265 270
 Glu Ser Ala Phe Ser Arg Ser Val Ser Leu Pro Ser Gly Gly Ala Ile
 275 280 285
 Val Ile Asp His Thr Glu Ala Leu Val Ser Ile Asp Val Asn Ser Ala
 290 295 300
 Arg Ala Thr Arg Gly Ala Asp Ile Glu Asp Thr Ala Phe Lys Thr Asn
 305 310 315 320
 Met Glu Ala Ala Glu Glu Val Ala Arg Gln Met Arg Leu Arg Asp Leu
 325 330 335
 Gly Gly Leu Val Val Ile Asp Phe Ile Asp Met Glu Asn Pro Lys His
 340 345 350
 Gln Arg Asp Val Glu Asn Val Leu Arg Asp Ala Leu Lys Lys Asp Arg
 355 360 365
 Ala Arg Val Gln Met Gly Lys Leu Ser Arg Phe Gly Leu Leu Glu Leu
 370 375 380
 Ser Arg Gln Arg Leu Lys Pro Ala Leu Gly Glu Ser Ser His Val Ala
 385 390 395 400
 Cys Pro Arg Cys Ala Gly Thr Gly Val Ile Arg Gly Ile Glu Ser Thr
 405 410 415
 Ala Leu His Val Leu Arg Ile Ile Gln Glu Glu Ala Met Lys Asp Asn
 420 425 430
 Thr Gly Glu Val Arg Ala Gln Val Pro Val Asp Val Ala Thr Phe Leu
 435 440 445
 Leu Asn Glu Lys Arg Ala Glu Leu Phe Ala Met Glu Glu Arg Leu Asp
 450 455 460
 Val Asn Val Val Leu Ile Pro Asn Ile His Leu Glu Asn Pro His Tyr
 465 470 475 480
 Glu Ile Asn Arg Ile Arg Thr Asp Asp Val Glu Glu Asp Gly Glu Pro
 485 490 495
 Ser Tyr Lys Arg Val Ala Glu Pro Glu Glu Asp Glu Ser Ala Lys Pro
 500 505 510
 Phe Gly Gly Glu Lys Ala Lys Ala Ala Arg Pro Glu Pro Ala Val Lys
 515 520 525
 Gly Val Arg His Thr Ser Pro Ala Pro Thr Ala Ala Pro Glu Lys Lys

530		535		540													
Thr 545	Ser	Trp	Trp	Asp	Ser 550	Phe	Lys	Ala	Trp	Leu 555	Lys	Arg	Ile	Phe	Gly 560		
Gly	Ser	Glu	Thr	Gln 565	Ala	Ala	Pro	Ala	Ala 570	Glu	Thr	Ser	Glu	Lys 575	Arg		
Ser	Thr	Ala	Asn 580	Arg	Ser	Gly	Ser	Arg 585	Ala	Asn	Asn	Arg	Arg 590	Gln	Asn		
Pro	Arg	Arg 595	Ser	Lys	Arg	Glu	Gly 600	Ser	Lys	Val	Glu	Val 605	Arg	Glu	Val		
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Glu	Arg	Ala	Asn	Glu 645	Ala	Glu	Ile	Gln	Ser 650	Arg	Asn	Val	Gln	Pro 655	Ala		
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Lys	Arg	Arg 675	Arg	Asn	Gly	Ser	Arg 680	Ser	Glu	Arg	Gly	Gln 685	Thr	Ala	Pro		
Glu	Thr 690	Ala	Thr	Val	Ala	Glu 695	Thr	Thr	Val	Gln	Thr 700	Ala	Glu	Asn	Thr		
Pro 705	Ser	Glu	Pro	His	Thr 710	Ala	Glu	Asp	Lys	Gly 715	Ser	Lys	Pro	Lys	Ser 720		
Glu	Arg	Asn	Arg	Arg 725	Glu	Arg	Asp	Ser	Arg 730	Asp	Ala	Lys	Glu	Arg 735	Arg		
Glu	Arg	Asn	Asn 740	Gln	Arg	Asp	Arg	Arg 745	Gln	Asn	Gly	Lys	Lys 750	Arg	Asn		
Ile	Pro	Ser 755	Ala	Ala	Lys	Ile	Glu 760	Gln	Tyr	Leu	Asn	Ile 765	His	Asp	Thr		
Ala	Asp 770	Lys	Val	Arg	Ser	Ala 775	Ala	Ala	His	Val	Phe	Gly 780	Glu	Thr	Asp		
Ala 785	Asn	Ala	Pro	Ile	Thr 790	Val	Ser	Ile	Ala	Asp 795	Pro	Val	Ala	Glu	Arg 800		
Asp	Leu	Pro	Thr	Ala 805	Ser	Pro	Ala	Val	Ser	Asn 810	Gly	Asp	Ala	Pro 815	Val		
Tyr	Asp	Ala	Ala 820	Glu	Lys	Ile	Arg	Arg 825	Ala	Thr	Ala	Ala	Ile 830	Leu	Pro		
Glu	Gly	Ala 835	Thr	Pro	Lys	Ala	Glu 840	Ala	Gln	Glu	Met	Pro 845	Ser	Glu	Thr		
Ala	Thr 850	Phe	Thr	Ala	Ala	Ala 855	Glu	Gln	Ala	Arg	Glu 860	Thr	Ala	Gln	Thr		
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Asp	Thr	Gln 35	Asp	Gly	Ser	Gly	Leu 40	His	His	Met	Val	Phe 45	Glu	Val	Leu		
Asp	Asn 50	Ala	Ile	Asp	Glu	Ala 55	Leu	Ala	Gly	His	Cys 60	Asp	Lys	Ile	Thr		
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Gly	Met	Pro	Thr	Gly 85	Ile	His	Pro	Lys	Glu 90	Gly	Arg	Ser	Ala	Ala 95	Glu		
Val	Ile	Met	Thr 100	Val	Leu	His	Ala	Gly 105	Gly	Lys	Phe	Asp	Asn 110	Asn	Ser		
Tyr	Lys	Ile 115	Ser	Gly	Gly	Leu	His 120	Gly	Val	Gly	Val	Ser 125	Val	Val	Asn		
Ala	Leu 130	Ser	Asp	Trp	Val	Thr 135	Leu	Thr	Ile	Tyr	Arg 140	Asp	Gly	Lys	Glu		
His 145	Phe	Val	Arg	Phe	Val 150	Arg	Gly	Glu	Thr	Glu 155	Glu	Pro	Leu	Lys	Ile 160		
Val	Gly	Asp	Ser	Asp 165	Lys	Lys	Gly	Thr	Thr 170	Val	Arg	Phe	Leu	Ala 175	Ser		
Thr	Glu	Thr	Phe 180	Gly	Asn	Val	Glu	Tyr 185	Ser	Phe	Asp	Ile	Leu 190	Ala	Lys		
Arg	Ile	Arg 195	Glu	Leu	Ser	Phe	Leu 200	Asn	Asn	Gly	Val	Asp 205	Ile	Glu	Leu		
Thr	Asp 210	Glu	Arg	Asp	Gly	Lys 215	His	Glu	Ser	Phe	Ala 220	Leu	Ser	Gly	Gly		
Val 225	Ala	Gly	Phe	Val	Gln 230	Tyr	Met	Asn	Arg	Lys 235	Lys	Thr	Pro	Leu	His 240		
Glu	Lys	Ile	Phe	Tyr	Ala	Phe	Gly	Glu	Lys	Asp	Gly	Met	Ser	Val	Glu		

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 Cys Ala Met Gln Trp Asn Asp Ser Tyr Gln Glu Ser Val Gln Cys Phe
 260 265 270
 Thr Asn Asn Ile Pro Gln Arg Asp Gly Gly Thr His Leu Thr Ala Leu
 275 280 285
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 Val Ala Lys Lys Ala Lys Val Glu Thr Ala Gly Asp Asp Met Arg Glu
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 Gly Leu Thr Cys Val Leu Ser Val Lys Leu Pro Asp Pro Lys Phe Ser
 325 330 335
 Ser Gln Thr Lys Asp Lys Leu Val Ser Gly Glu Ile Gly Pro Val Val
 340 345 350
 Asn Glu Val Ile Ser Gln Ala Leu Thr Asp Phe Leu Glu Glu Asn Pro
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 Asn Glu Ala Lys Ile Ile Thr Gly Lys Ile Val Asp Ala Ala Arg Ala
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 385 390 395 400
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 405 410 415
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 420 425 430
 Gly Ser Ala Met Gln Gly Arg Asp Arg Lys Phe Gln Ala Ile Leu Pro
 435 440 445
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 450 455 460
 Leu Ala Ser Gln Glu Val Ala Thr Leu Ile Thr Ala Leu Gly Ala Gly
 465 470 475 480
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 485 490 495
 Ile Ile Met Thr Asp Ala Asp Val Asp Gly Ala His Ile Arg Thr Leu
 500 505 510
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 515 520 525
 Tyr Ile Tyr Ile Ala Gln Pro Pro Leu Tyr Lys Ala Lys Tyr Gly Lys
 530 535 540
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 Glu Gly Ala Glu Leu Ala Asp Thr Ala Lys Gln Phe Leu Leu Ala Lys

580

585

590

Thr Val Ile Glu Gln Glu Ser Arg Phe Val Asp Glu Leu Val Leu Arg
595 600 605
Ala Met Leu His Ala Ser Pro Ile Asp Leu Thr Ser Ser Glu Asn Ala
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625 630 635 640
Ala Leu Glu Arg Ile Glu Gly His Glu Gly His Arg Phe Ile Lys Ile
645 650 655
Thr Arg Lys Leu His Gly Asn Val Met Val Ser Tyr Ile Glu Pro Lys
660 665 670
Phe Leu Asn Ser Lys Ala Tyr Gln Thr Leu Thr Gln Thr Ala Ala Ala
675 680 685
Leu Lys Gly Met Val Gly Glu Gly Ala Lys Leu Tyr Lys Gly Glu Asn
690 695 700
Gly Tyr Asp Ala Asp Ser Phe Glu Thr Ala Leu Asp Ile Leu Met Ser
705 710 715 720
Val Ala Gln Lys Gly Met Ser Ile Gln Arg Tyr Lys Gly Leu Gly Glu
725 730 735
Met Asn Pro Glu Gln Leu Trp Glu Thr Thr Met Asp Pro Ala Val Arg
740 745 750
Arg Leu Leu Lys Val Arg Ile Glu Asp Ala Ile Ala Ala Asp Glu Val
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35 40 45
Arg Val Ala Gly Glu Val Arg Gly Phe Asp Ile Gly Gln Tyr Ile Ser
50 55 60
Ala Lys Glu Ala Arg Arg Met Asp Val Phe Ile His Tyr Gly Ile Ala
65 70 75 80
Ala Ala Leu Gln Ala Ile Ala Asp Ser Gly Leu Asp Asp Val Glu Asn

85

90

95

Leu Asp Lys Asp Arg Ile Gly Val Asn Ile Gly Ser Gly Ile Gly Gly
100 105 110
Leu Pro Gly Ile Glu Val Thr Gly Lys Ala Val Ile Glu Gly Gly Ala
115 120 125
Arg Lys Ile Asn Pro Phe Phe Ile Pro Gly Ser Leu Ile Asn Leu Ile
130 135 140
Ser Gly His Val Thr Ile Leu Lys Gly Tyr Arg Gly Pro Ser Tyr Gly
145 150 155 160
Met Val Ser Ala Cys Thr Thr Gly Ala His Ala Ile Gly Asp Ser Leu
165 170 175
Arg Met Ile Lys Tyr Gly Asp Ala Asp Ile Met Val Ala Gly Gly Ala
180 185 190
Glu Gly Ala Ile Ser Thr Leu Gly Val Gly Gly Phe Ala Ala Met Lys
195 200 205
Ala Leu Ser Thr Arg Asn Asp Asp Pro Ala Thr Ala Ser Arg Pro Trp
210 215 220
Asp Lys Gly Arg Asp Gly Phe Val Ile Gly Glu Gly Ala Gly Ile Leu
225 230 235 240
Val Leu Glu Glu Leu Glu His Ala Lys Lys Arg Gly Ala Lys Ile Tyr
245 250 255
Ala Glu Ile Val Gly Phe Gly Met Ser Ser Asp Ala Tyr His Ile Thr
260 265 270
Ala Pro Asn Glu Glu Gly Pro Ala Leu Ala Val Thr Arg Ala Leu Lys
275 280 285
Asp Ala Gly Ile Asn Pro Glu Asp Val Asp Tyr Val Asn Ala His Gly
290 295 300
Thr Ser Thr Pro Leu Gly Asp Ala Asn Glu Thr Lys Ala Leu Lys Arg
305 310 315 320
Ala Phe Gly Glu His Ala Tyr Lys Thr Val Val Ser Ser Thr Lys Ser
325 330 335
Met Thr Gly His Leu Leu Gly Ala Ala Gly Gly Val Glu Ala Val Tyr
340 345 350
Ser Ile Leu Ala Ile His Asp Gly Lys Ile Pro Pro Thr Ile Asn Ile
355 360 365
Phe Glu Gln Asp Val Glu Ala Gly Cys Asp Leu Asp Tyr Cys Ala Asn
370 375 380
Glu Ala Arg Asp Ala Glu Ile Asp Val Ala Ile Ser Asn Ser Phe Gly
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SEQLIST_PP019737.0004.txt

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<212> PRT

<213> Neisseria meningitidis

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20 25 30

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35 40 45

Ile Asp Glu Val Lys Thr Ser Gly Leu Arg Gly Arg Gly Gly Ala Gly
50 55 60

Phe Pro Thr Gly Leu Lys Trp Ser Phe Met Pro Arg Ser Phe Pro Gly
65 70 75 80

Glu Lys Tyr Val Val Cys Asn Thr Asp Glu Gly Glu Pro Gly Thr Phe
85 90 95

Lys Asp Arg Asp Ile Ile Met Phe Asn Pro His Ala Leu Ile Glu Gly
100 105 110

Met Ile Ile Ala Gly Tyr Ala Met Gly Ala Lys Ala Gly Tyr Asn Tyr
115 120 125

Ile His Gly Glu Ile Phe Glu Gly Tyr Gln Arg Phe Glu Ala Ala Leu
130 135 140

Glu Gln Ala Arg Ala Ala Gly Phe Leu Gly Lys Asn Ile Leu Gly Ser
145 150 155 160

Asp Phe Glu Phe Glu Leu Phe Ala His His Gly Tyr Gly Ala Tyr Ile
165 170 175

Cys Gly Glu Glu Thr Ala Leu Leu Glu Ser Leu Glu Gly Lys Lys Gly
180 185 190

Gln Pro Arg Phe Lys Pro Pro Phe Pro Ala Ser Phe Gly Leu Tyr Gly
195 200 205

Lys Pro Thr Thr Ile Asn Asn Thr Glu Thr Phe Ser Ser Val Pro Phe
210 215 220

Ile Ile Arg Asp Gly Gly Gln Ala Phe Ala Asp Lys Gly Ile Pro Asn
225 230 235 240

Ala Gly Gly Thr Lys Leu Phe Cys Ile Ser Gly His Val Glu Arg Pro
245 250 255

Gly Asn Tyr Glu Val Pro Leu Gly Thr Pro Phe Ala Glu Val Leu Lys
260 265 270

Met Ala Gly Gly Met Arg Gly Gly Lys Lys Leu Lys Ala Val Ile Pro
275 280 285

Gly Gly Ser Ser Ala Pro Val Leu Pro Ala Asp Ile Met Met Gln Thr
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Asn Met Asp Tyr Asp Ser Ile Ser Lys Ala Gly Ser Met Leu Gly Ser

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 325 330 335
 Glu Arg Leu Ser Tyr Phe Tyr Tyr Asp Glu Ser Cys Gly Gln Cys Thr
 340 345 350
 Pro Cys Arg Glu Gly Thr Gly Trp Leu Tyr Arg Ile Val His Arg Ile
 355 360 365
 Val Glu Gly Lys Gly Lys Met Glu Asp Leu Asp Leu Leu Asp Ser Val
 370 375 380
 Gly Asn Gln Met Ala Gly Arg Thr Ile Cys Ala Leu Ala Asp Ala Ala
 385 390 395 400
 Val Phe Pro Val Arg Ser Phe Thr Lys His Phe Arg Asp Glu Phe Val
 405 410 415
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 420 425 430

Trp

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 35 40 45
 Lys Thr Ile Thr Lys Ile Gly Ser Thr Ala Ala Leu Gly Tyr Leu Ala
 50 55 60
 Tyr Arg Gly Tyr Gln Met Trp Gln Gln Asn Lys Gly Arg Ala Thr Val
 65 70 75 80
 Thr Gln Ser Asp Phe Gln Pro Ala Gly Glu Thr Glu Glu Thr Tyr Ser
 85 90 95
 Arg Thr Val Leu Arg Thr Met Ile Ala Ala Ala Ala Ser Asp Gly Met
 100 105 110
 Ile Asp Glu Ala Glu Arg Arg Thr Ile Glu Gln Glu Ser Gly Thr Asp
 115 120 125
 Pro Glu Thr Ala Ala Trp Leu Ala Ala Glu Tyr Arg Leu Pro Ala Ser
 130 135 140
 Ile Glu Asp Ile Ala Ala Ala Val Gly Asn Asp Glu Ala Leu Ala Ala
 145 150 155 160
 Glu Ala Tyr Leu Ala Ala Arg Leu Val Cys Ala Asp Leu Ser Arg Lys

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35 40 45

Val Asn Tyr Thr Val Leu Ser Thr Pro Ile Pro Gln Gln Gln Ala Gly
50 55 60

Lys Ile Glu Val Leu Glu Phe Phe Gly Tyr Phe Cys Pro His Cys Ala
65 70 75 80

His Leu Glu Pro Val Leu Ser Glu His Ile Lys Thr Phe Lys Asp Asp
85 90 95

Thr Tyr Met Arg Arg Glu His Val Val Trp Gly Asp Glu Met Lys Pro
100 105 110

Leu Ala Arg Leu Ala Ala Ala Val Glu Met Ala Gly Glu Ser Asp Lys
115 120 125

Ala Asn Ser His Ile Phe Asp Ala Met Val Asn Gln Lys Ile Asn Leu
130 135 140

Ala Asp Thr Asp Thr Leu Lys Lys Trp Leu Ser Glu Gln Thr Ala Phe
145 150 155 160

Asp Gly Lys Lys Val Leu Ala Ala Phe Glu Ala Pro Glu Ser Gln Ala
165 170 175

Arg Ala Ala Gln Met Glu Glu Leu Thr Asn Lys Phe Gln Ile Ser Gly
180 185 190

Thr Pro Thr Val Ile Val Gly Gly Lys Tyr Gln Val Glu Phe Lys Asp
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Val Leu Pro Met Leu Phe Ser Asp Gly Val Ile Ser Pro Lys Ser Leu
          35          40          45
Ala Ala Leu Ile Ala Arg Val Phe Ser Tyr Ser Ile Leu Asp Leu Arg
          50          55          60
His Tyr Pro Arg His Arg Val Leu Met Gly Val Leu Thr Glu Glu Gln
65          70          75          80
Met Val Glu Phe His Cys Val Pro Val Phe Arg Arg Gly Asp Lys Val
          85          90          95
Phe Phe Ala Val Ser Asp Pro Thr Gln Met Pro Gln Ile Gln Lys Thr
          100          105          110
Val Ser Ala Ala Gly Ile Glu Val Glu Leu Val Ile Val Glu Asp Asp
          115          120          125
Gln Leu Ala Gly Leu Leu Asp Trp Val Gly Ser Arg Ser Thr Ser Leu
          130          135          140
Leu Gln Glu Leu Gly Glu Gly Gln Glu Glu Glu Glu Ser His Thr Leu
145          150          155          160
Tyr Ile Asp Asn Glu Glu Ala Glu Asp Gly Pro Val Pro Arg Phe Ile
          165          170          175
His Lys Thr Leu Ser Asp Ala Leu Arg Ser Gly Ala Ser Asp Ile His
          180          185          190
Phe Glu Phe Tyr Glu His Asn Ala Arg Ile Arg Phe Arg Val Asp Gly
          195          200          205
Gln Leu Arg Glu Val Val Gln Pro Pro Ile Ala Val Arg Gly Gln Leu
          210          215          220
Ala Ser Arg Ile Lys Val Met Ser Arg Leu Asp Ile Ser Glu Lys Arg
225          230          235          240
Ile Pro Gln Asp Gly Arg Met Gln Leu Thr Phe Gln Lys Gly Gly Lys
          245          250          255
Pro Val Asp Phe Arg Val Ser Thr Leu Pro Thr Leu Phe Gly Glu Lys
          260          265          270
Val Val Met Arg Ile Leu Asn Ser Asp Ala Ala Ser Leu Asn Ile Asp
          275          280          285
Gln Leu Gly Phe Glu Pro Phe Gln Lys Lys Leu Leu Leu Glu Ala Ile
          290          295          300
His Arg Pro Tyr Gly Met Val Leu Val Thr Gly Pro Thr Gly Ser Gly
305          310          315          320
Lys Thr Val Ser Leu Tyr Thr Cys Leu Asn Ile Leu Asn Thr Glu Ser

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325 330 335
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 340 345 350
 Ile Asn Gln Val Asn Val Asn Asp Lys Gln Gly Leu Thr Phe Ala Ala
 355 360 365
 Ala Leu Lys Ser Phe Leu Arg Gln Asp Pro Asp Ile Ile Met Val Gly
 370 375 380
 Glu Ile Arg Asp Leu Glu Thr Ala Asp Ile Ala Ile Lys Ala Ala Gln
 385 390 395 400
 Thr Gly His Met Val Phe Ser Thr Leu His Thr Asn Asn Ala Pro Ala
 405 410 415
 Thr Leu Ser Arg Met Leu Asn Met Gly Val Ala Pro Phe Asn Ile Ala
 420 425 430
 Ser Ser Val Ser Leu Ile Met Ala Gln Arg Leu Leu Arg Arg Leu Cys
 435 440 445
 Ser Ser Cys Lys Gln Glu Val Glu Arg Pro Ser Ala Ser Ala Leu Lys
 450 455 460
 Glu Val Gly Phe Thr Asp Glu Asp Leu Ala Lys Asp Trp Lys Leu Tyr
 465 470 475 480
 Arg Ala Val Gly Cys Asp Arg Cys Arg Gly Gln Gly Tyr Lys Gly Arg
 485 490 495
 Ala Gly Val Tyr Glu Val Met Pro Ile Ser Glu Glu Met Gln Arg Val
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 Ile Met Asn Asn Gly Thr Glu Val Asp Ile Leu Asp Val Ala Tyr Lys
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 <213> Neisseria meningitidis

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 20 25 30
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 35 40 45
 Gly Val Gly Glu Trp Lys Val Asn Glu Trp Ala Lys Lys Ala Val Leu
 50 55 60
 Leu Ser Phe Arg Ile Gln Asp Asn Glu Val Leu Asn Asp Gly Val Asn
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85

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95

Lys Glu Ala Leu Ser Gly Asp Phe Leu Asp Ser Ile Ser Arg Glu Ala
 100 105 110
 Phe Asn Thr Ala His Glu Ile Ser Ala Tyr Ser Leu Pro Ala Leu Ala
 115 120 125
 Lys Ala Ala Arg Pro Met Met Arg Gly Arg Asn Ser Ala Ile Val Ala
 130 135 140
 Leu Ser Tyr Leu Gly Ala Val Arg Ala Ile Pro Asn Tyr Asn Val Met
 145 150 155 160
 Gly Met Ala Lys Ala Ser Leu Glu Ala Gly Ile Arg Phe Thr Ala Ala
 165 170 175
 Cys Leu Gly Lys Glu Gly Ile Arg Cys Asn Gly Ile Ser Ala Gly Pro
 180 185 190
 Ile Lys Thr Leu Ala Ala Ser Gly Ile Ala Asp Phe Gly Lys Leu Leu
 195 200 205
 Gly His Val Ala Ala His Asn Pro Leu Arg Arg Asn Val Thr Ile Glu
 210 215 220
 Glu Val Gly Asn Thr Ala Ala Phe Leu Leu Ser Asp Leu Ser Ser Gly
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 Ile Thr Gly Glu Ile Thr Tyr Val Asp Gly Gly Tyr Ser Ile Asn Ala
 245 250 255
 Leu Ser Thr Glu Gly
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 35 40 45
 Tyr Gly Ser Glu Cys Phe Glu Gly Leu Lys Ala Phe Arg Gln Ala Asp
 50 55 60
 Gly Lys Ile Val Leu Phe Arg Pro Thr Ala Asn Ile Ala Arg Met Arg
 65 70 75 80
 Gln Ser Ala Asp Ile Leu His Leu Pro Arg Pro Glu Thr Glu Ala Tyr
 85 90 95
 Leu Asp Ala Leu Ile Lys Leu Val Lys Arg Ala Ala Asp Glu Ile Pro
 100 105 110
 Asp Ala Pro Ala Ala Leu Tyr Leu Arg Pro Thr Leu Ile Gly Thr Asp

115

Pro Val Ile Gly Lys Ala Gly Ser Pro Ser Glu Thr Ala Leu Leu Tyr
130 135 140
Ile Leu Ala Ser Pro Val Gly Asp Tyr Phe Lys Val Gly Ser Pro Val
145 150 155 160
Lys Ile Leu Val Glu Thr Glu His Ile Arg Cys Ala Pro His Met Gly
165 170 175
Arg Val Lys Cys Gly Gly Asn Tyr Ala Ser Ala Met His Trp Val Leu
180 185 190
Lys Ala Lys Ala Glu Tyr Gly Ala Asn Gln Val Leu Phe Cys Pro Asn
195 200 205
Gly Asp Val Gln Glu Thr Gly Ala Ser Asn Phe Ile Leu Ile Asn Gly
210 215 220
Asp Glu Ile Ile Thr Lys Pro Leu Thr Asp Glu Phe Leu His Gly Val
225 230 235 240
Thr Arg Asp Ser Val Leu Thr Val Ala Lys Asp Leu Gly Tyr Thr Val
245 250 255
Ser Glu Arg Asn Phe Thr Val Asp Glu Leu Lys Ala Ala Val Glu Asn
260 265 270
Gly Ala Glu Ala Ile Leu Thr Gly Thr Ala Ala Val Ile Ser Pro Val
275 280 285
Thr Ser Phe Val Ile Gly Gly Lys Glu Ile Glu Val Lys Ser Gln Glu
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Ala Glu Asp Lys Tyr Gly Trp Leu Val Glu Val Cys
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Leu Lys Gln Gly Val Cys Gly Val Thr Ser Asn Pro Ala Ile Phe Gln
35 40 45
Lys Ala Phe Ala Gly Asp Ala Leu Tyr Ala Asp Glu Ile Ala Ala Leu
50 55 60
Lys Gln Gln Asn Leu Ser Pro Lys Gln Arg Tyr Glu Thr Met Ala Val
65 70 75 80
Ala Asp Val Arg Ala Ala Cys Asp Val Cys Leu Ala Glu His Glu Ser
Page 55

85

90

95

Thr Gly Gly Lys Thr Gly Phe Val Ser Leu Glu Val Ser Pro Glu Leu
100 105 110
Ser Lys Asp Ala Gln Gly Thr Val Glu Glu Ala Arg Arg Leu Tyr Ala
115 120 125
Ala Ile Gly Cys Lys Asn Ala Met Ile Lys Val Pro Ala Thr Asp Ala
130 135 140
Gly Ile Asp Ala Leu Glu Thr Leu Val Ser Asp Gly Ile Ser Val Asn
145 150 155 160
Leu Thr Leu Leu Phe Ser Arg Ala Gln Thr Leu Lys Ala Tyr Ala Ala
165 170 175
Tyr Ala Arg Gly Ile Ala Lys Arg Leu Ala Ala Gly Gln Ser Val Ala
180 185 190
His Ile Gln Val Val Ala Ser Phe Phe Ile Ser Arg Val Asp Gly Ala
195 200 205
Leu Asp Thr Thr Leu Pro Asp His Leu Lys Gly Lys Ile Ala Ile Ala
210 215 220
Leu Ala Lys Ala Ala Tyr Gln Asp Trp Ala Gln Tyr Phe Gly Ser Pro
225 230 235 240
Glu Phe Ala Ala Leu Glu Thr Lys Gly Ala Asn Arg Val Gln Leu Leu
245 250 255
Trp Ala Ser Thr Gly Val Lys Asn Pro Ala Tyr Pro Asp Thr Leu Tyr
260 265 270
Val Asp Ser Leu Ile Gly Ala His Thr Val Asn Thr Val Pro Asp Ala
275 280 285
Thr Leu Lys Ala Phe Ile Asp His Gly Thr Ala Lys Ala Thr Leu Thr
290 295 300
Glu Gly Val Glu Glu Ala Gln Ala Gln Leu Ala Glu Thr Ala Ala Leu
305 310 315 320
Gly Ile Asp Val Glu Thr Leu Ala Thr Arg Leu Gln Glu Asp Gly Leu
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Lys Gln Phe Glu Glu Ala Phe Glu Lys Leu Leu Ala Pro Leu Ala
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472

<212>

PRT

<213>

Neisseria meningitidis

<400>

44

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Phe Val Asp Leu Arg Phe Thr Asp Thr Lys Gly Lys Gln His His Phe
20 25 30

Thr Val Pro Ala Arg Ile Val Leu Glu Asp Pro Glu Glu Trp Phe Glu
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35

40

45

Asn Gly Gln Ala Phe Asp Gly Ser Ser Ile Gly Gly Trp Lys Gly Ile
50 55 60
Gln Ala Ser Asp Met Gln Leu Arg Pro Asp Ala Ser Thr Ala Phe Val
65 70 75 80
Asp Pro Phe Tyr Asp Asp Ala Thr Val Val Leu Thr Cys Asp Val Ile
85 90 95
Asp Pro Ala Asp Gly Gln Gly Tyr Asp Arg Asp Pro Arg Ser Ile Ala
100 105 110
Arg Arg Ala Glu Ala Tyr Leu Lys Ser Ser Gly Ile Gly Glu Thr Ala
115 120 125
Tyr Phe Gly Pro Glu Pro Glu Phe Phe Val Phe Asp Gly Ile Glu Phe
130 135 140
Glu Thr Asp Met His Lys Thr Arg Tyr Glu Ile Thr Ser Glu Ser Gly
145 150 155 160
Ala Trp Ala Ser Gly Leu His Met Asp Gly Gln Asn Thr Gly His Arg
165 170 175
Pro Thr Val Lys Gly Gly Tyr Ala Pro Val Ala Pro Ile Asp Cys Gly
180 185 190
Gln Asp Leu Arg Ser Ala Met Val Asn Ile Leu Glu Glu Leu Gly Ile
195 200 205
Glu Val Glu Val His His Ser Glu Val Gly Thr Gly Ser Gln Met Glu
210 215 220
Ile Gly Thr Arg Phe Ala Thr Leu Val Lys Arg Ala Asp Gln Thr Gln
225 230 235 240
Asp Met Lys Tyr Val Ile Gln Asn Val Ala His Asn Phe Gly Lys Thr
245 250 255
Ala Thr Phe Met Pro Lys Pro Ile Met Gly Asp Asn Gly Ser Gly Met
260 265 270
His Val His Gln Ser Ile Trp Lys Asp Gly Gln Asn Leu Phe Ala Gly
275 280 285
Asp Gly Tyr Ala Gly Leu Ser Asp Thr Ala Leu Tyr Tyr Ile Gly Gly
290 295 300
Ile Ile Lys His Ala Lys Ala Leu Asn Ala Ile Thr Asn Pro Ser Thr
305 310 315 320
Asn Ser Tyr Lys Arg Leu Val Pro His Phe Glu Ala Pro Thr Lys Leu
325 330 335
Ala Tyr Ser Ala Lys Asn Arg Ser Ala Ser Ile Arg Ile Pro Ser Val
340 345 350
Asn Ser Ser Lys Ala Arg Arg Ile Glu Ala Arg Phe Pro Asp Pro Thr
355 360 365
Ala Asn Pro Tyr Leu Ala Phe Ala Ala Leu Leu Met Ala Gly Leu Asp

370

375

380

Gly Ile Gln Asn Lys Ile His Pro Gly Asp Pro Ala Asp Lys Asn Leu
 385 390 395 400
 Tyr Asp Leu Pro Pro Glu Glu Asp Ala Leu Val Pro Thr Val Cys Ala
 405 410 415
 Ser Leu Glu Glu Ala Leu Ala Ala Leu Lys Ala Asp His Glu Phe Leu
 420 425 430
 Leu Arg Gly Gly Val Phe Ser Lys Asp Trp Ile Asp Ser Tyr Ile Ala
 435 440 445
 Phe Lys Glu Glu Asp Val Arg Arg Ile Arg Met Ala Pro His Pro Leu
 450 455 460
 Glu Phe Glu Met Tyr Tyr Ser Leu
 465 470

<210> 45
 <211> 242
 <212> PRT
 <213> Neisseria meningitidis

<400> 45
 Met Thr Lys Gln Leu Lys Leu Ser Ala Leu Phe Val Ala Leu Leu Ala
 1 5 10 15
 Ser Gly Thr Ala Val Ala Gly Glu Ala Ser Val Gln Gly Tyr Thr Val
 20 25 30
 Ser Gly Gln Ser Asn Glu Ile Val Arg Asn Asn Tyr Gly Glu Cys Trp
 35 40 45
 Lys Asn Ala Tyr Phe Asp Lys Ala Ser Gln Gly Arg Val Glu Cys Gly
 50 55 60
 Asp Ala Val Ala Ala Pro Glu Pro Glu Pro Glu Pro Glu Pro Ala Pro
 65 70 75 80
 Ala Pro Val Val Val Val Glu Gln Ala Pro Gln Tyr Val Asp Glu Thr
 85 90 95
 Ile Ser Leu Ser Ala Lys Thr Leu Phe Gly Phe Asp Lys Asp Ser Leu
 100 105 110
 Arg Ala Glu Ala Gln Asp Asn Leu Lys Val Leu Ala Gln Arg Leu Ser
 115 120 125
 Arg Thr Asn Val Gln Ser Val Arg Val Glu Gly His Thr Asp Phe Met
 130 135 140
 Gly Ser Asp Lys Tyr Asn Gln Ala Leu Ser Glu Arg Arg Ala Tyr Val
 145 150 155 160
 Val Ala Asn Asn Leu Val Ser Asn Gly Val Pro Val Ser Arg Ile Ser
 165 170 175
 Ala Val Gly Leu Gly Glu Ser Gln Ala Gln Met Thr Gln Val Cys Glu
 180 185 190
 Ala Glu Val Ala Lys Leu Gly Ala Lys Val Ser Lys Ala Lys Lys Arg
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195

Glu Ala Leu Ile Ala Cys Ile Glu Pro Asp Arg Arg Val Asp Val Lys
210 215 220
Ile Arg Ser Ile Val Thr Arg Gln Val Val Pro Ala His Asn His His
225 230 235 240
Gln His

<210> 46
<211> 752
<212> PRT
<213> Neisseria meningitidis

<400> 46
Met Tyr Thr Arg Ile Met Glu Ile Ser Pro Trp Thr Leu Arg Ser Ala
1 5 10 15
Lys Leu Glu Lys Glu His Lys Arg Leu Gln Glu Ser Leu Thr Ser Leu
20 25 30
Gly Asn Gly Tyr Met Gly Met Arg Gly Ser Phe Glu Glu Thr Tyr Ser
35 40 45
Ala Asp Ser His Leu Gly Thr Tyr Ile Ala Gly Val Trp Phe Pro Asp
50 55 60
Lys Thr Arg Val Gly Trp Trp Lys Asn Gly Tyr Pro Lys Tyr Phe Gly
65 70 75 80
Lys Ala Ile Asn Ala Phe Asn Phe Ser Lys Val Lys Ile Phe Val Asp
85 90 95
Gly Gln Glu Val Asp Leu Ala Lys Asn Asp Val Ala Gly Phe Ser Val
100 105 110
Glu Leu Asp Met Gln His Gly Val Leu Arg Arg Ser Phe Thr Val Phe
115 120 125
Gly Val Arg Phe Asn Val Cys Lys Phe Leu Ser Val Ala Gln Lys Glu
130 135 140
Leu Ala Val Ile Arg Trp Glu Ala Val Ser Val Asp Gly Lys Thr His
145 150 155 160
Gln Val Arg Ile Asp Ser Ile Ile Asp Ala Asp Val Lys Asn Glu Asp
165 170 175
Ser Asn Tyr Glu Glu Lys Phe Trp Gln Val Leu Asp Lys Gly Val Ser
180 185 190
Asp Ser Leu Ser Tyr Ile Ala Ala Gln Thr Val Ala Asn Pro Phe Gly
195 200 205
Val Glu Gln Phe Ile Val Asn Ala Glu Gln Thr Phe Ala Gly Ser Phe
210 215 220
Lys Ala Leu Gly Gly Ser Gln Thr Asp Trp Gln Val Ser Asn Ser Phe
225 230 235 240
Glu Ser Glu Val Gly Ser Thr Pro Glu Thr Phe Glu Lys Arg Val Ile

245
 Val Thr Thr Ser Arg Asp Tyr Gln Ser Leu Glu Ala Val Lys Ala Ala
 260 265 270
 Gly Arg Ala Leu Ser Glu Lys Ile Ala Gly Val Ala Phe Glu Thr Leu
 275 280 285
 Leu Asp Ala His Lys Ala Gly Trp Leu His Arg Trp Glu Ile Ala Asp
 290 295 300
 Val Val Ile Glu Gly Ser Asp Glu Ala Gln Gln Gly Ile Arg Phe Asn
 305 310 315 320
 Leu Phe Gln Leu Phe Ser Thr Tyr Tyr Gly Glu Asp Ala Arg Leu Asn
 325 330 335
 Ile Gly Pro Lys Gly Phe Thr Gly Glu Lys Tyr Gly Gly Ala Thr Tyr
 340 345 350
 Trp Asp Thr Glu Ala Tyr Ala Val Pro Leu Tyr Leu Ala Leu Ala Glu
 355 360 365
 Pro Glu Val Thr Arg Asn Leu Leu Gln Tyr Arg Arg Asn Gln Leu Pro
 370 375 380
 Gln Ala Gln His Asn Ala Arg Glu Gln Gly Leu Ala Gly Ala Leu Tyr
 385 390 395 400
 Pro Met Val Thr Phe Thr Gly Ile Glu Cys His Asn Glu Trp Glu Ile
 405 410 415
 Thr Phe Glu Glu Ile His Arg Asn Gly Ala Ile Pro Tyr Ala Ile Tyr
 420 425 430
 Asn Tyr Thr Asn Tyr Thr Gly Asp Glu Gly Tyr Leu Ala Lys Glu Gly
 435 440 445
 Leu Glu Val Leu Val Glu Val Ser Arg Phe Trp Ala Asp Arg Val His
 450 455 460
 Phe Ser Lys Arg Asn Gly Lys Tyr Met Ile His Gly Val Thr Gly Pro
 465 470 475 480
 Asn Glu Tyr Glu Asn Asn Ile Asn Asn Asn Trp Tyr Thr Asn Thr Leu
 485 490 495
 Ala Ala Trp Val Leu Asp Tyr Thr Arg Glu Ala Leu Ala Lys Tyr Pro
 500 505 510
 Arg Pro Asp Leu Asn Val Arg Ala Asp Glu Leu Glu Lys Trp Ala Asp
 515 520 525
 Ile Ser Ala Asn Met Tyr Arg Pro His Asp Glu Glu Leu Gly Val Phe
 530 535 540
 Val Gln His Asp Gly Phe Leu Asp Lys Asp Ile Arg Pro Val Ser Ala
 545 550 555 560
 Leu Ser Pro Asp Asp Leu Pro Leu Asn Gln Lys Trp Ser Trp Asp Lys
 565 570 575
 Ile Leu Arg Ser Pro Phe Ile Lys Gln Ala Asp Val Leu Gln Gly Ile

580

585

590

Tyr Phe Phe Ser Asp Arg Phe Asn Ile Asp Glu Lys Arg Arg Asn Phe
595 600 605
Asp Phe Tyr Glu Pro Met Thr Val His Glu Ser Ser Leu Ser Pro Cys
610 615 620
Ile His Ser Ile Leu Ala Ala Glu Leu Gly Lys Glu Glu Lys Ala Val
625 630 635 640
Glu Met Tyr Gln Arg Thr Ala Arg Leu Asp Leu Asp Asn Tyr Asn Asn
645 650 655
Asp Thr Glu Asp Gly Leu His Ile Thr Ser Met Thr Gly Ser Trp Leu
660 665 670
Ala Ile Val Gln Gly Phe Ala Gln Met Lys Thr Trp Gly Gly Lys Leu
675 680 685
Ser Phe Ala Pro Phe Leu Pro Ser Ala Trp Thr Gly Tyr Ala Phe His
690 695 700
Ile Asn Tyr Arg Gly Arg Leu Ile Lys Val Ala Val Gly Lys Glu Asn
705 710 715 720
Val Val Phe Thr Leu Leu Lys Gly Glu Ser Leu Asp Leu Gln Val Tyr
725 730 735
Gly Lys Asp Ile Thr Leu Asp Gly Ser His Thr Val Ala Leu Glu Lys
740 745 750

<210> 47
<211> 221
<212> PRT
<213> Neisseria meningitidis

<400> 47
Met Thr Phe Thr Ala Val Leu Phe Asp Leu Asp Gly Val Ile Thr Asp
1 5 10 15
Thr Ala Glu Tyr His Tyr Arg Ala Trp Lys Lys Leu Ala Glu Glu Leu
20 25 30
Gly Ile Ser Ile Asp Arg Lys Phe Asn Glu Gln Leu Lys Gly Val Ser
35 40 45
Arg Asp Asp Ser Leu Lys Arg Ile Leu Ala His Gly Gly Lys Thr Val
50 55 60
Ser Glu Ala Glu Phe Ala Glu Leu Thr Arg Arg Lys Asn Asp Asn Tyr
65 70 75 80
Val Glu Met Ile Gln Ala Val Lys Pro Glu Asp Val Tyr Pro Gly Ile
85 90 95
Leu Pro Leu Leu Glu Ala Leu Arg Ala Asn Gly Lys Lys Ile Ala Leu
100 105 110
Ala Ser Ala Ser Lys Asn Gly Pro Phe Leu Leu Glu Arg Met Gly Leu
115 120 125

SEQLIST_PP019737.0004.txt

Thr His Phe Phe Asp Ala Ile Ala Asp Pro Ala Ala Val Ala His Ser
 130 135 140
 Lys Pro Ala Pro Asp Ile Phe Leu Ala Ala Ala Glu Gly Val Asp Ala
 145 150 155 160
 Asp Ile Arg Gln Cys Ile Gly Ile Glu Asp Ala Ala Ala Gly Val Ala
 165 170 175
 Ala Ile Lys Ala Ala Gly Ala Leu Pro Ile Gly Val Gly Lys Ala Glu
 180 185 190
 Asp Leu Gly Ser Asp Ile Ala Leu Val Ser Gly Thr Ala Glu Leu Thr
 195 200 205
 Tyr Ala Tyr Leu Gln Ser Val Trp Glu Gln Ser Gly Arg
 210 215 220

<210> 48
 <211> 414
 <212> PRT
 <213> Neisseria meningitidis

<400> 48
 Met Glu Gln Gln Arg Tyr Ile Ser Val Leu Asp Ile Gly Thr Ser
 1 5 10 15
 Lys Val Leu Ala Leu Ile Gly Glu Val Gln Asp Asp Asp Lys Ile Asn
 20 25 30
 Ile Val Gly Leu Gly Gln Ala Pro Ser Arg Gly Leu Arg Ala Gly Met
 35 40 45
 Val Thr Asn Ile Asp Ala Thr Val Gln Ala Ile Arg Gln Ala Val Asn
 50 55 60
 Asp Ala Glu Leu Met Ala Asp Thr Lys Ile Thr His Val Thr Thr Gly
 65 70 75 80
 Ile Ala Gly Asn His Ile Arg Ser Leu Asn Ser Gln Gly Val Val Lys
 85 90 95
 Ile Lys Asp Gly Glu Val Thr Gln Ala Asp Ile Asp Arg Ala Ile Glu
 100 105 110
 Thr Ala Lys Ala Ile Asn Ile Pro Pro Asp Gln Lys Ile Leu Asp Ala
 115 120 125
 Val Val Gln Asp Tyr Ile Ile Asp Thr Gln Leu Gly Val Arg Glu Pro
 130 135 140
 Ile Gly Met Ser Gly Val Arg Leu Asp Thr Arg Val His Ile Ile Thr
 145 150 155 160
 Gly Ala Ser Thr Ala Val Gln Asn Val Gln Lys Cys Ile Glu Arg Cys
 165 170 175
 Gly Leu Lys Ser Asp Gln Ile Met Leu Gln Pro Leu Ala Ser Gly Gln
 180 185 190
 Ala Val Leu Thr Glu Asp Glu Lys Asp Leu Gly Val Cys Val Ile Asp
 195 200 205

SEQLIST_PP019737.0004.txt

Ile Gly Gly Gly Thr Thr Asp Ile Ala Val Tyr Met Asn Gly Ala Ile
 210 215 220
 Arg His Thr Ser Val Ile Pro Ala Gly Gly Asn Leu Ile Thr Lys Asp
 225 230 235 240
 Leu Ser Lys Ser Leu Arg Thr Pro Leu Asp Ala Ala Glu Tyr Ile Lys
 245 250 255
 Ile His Tyr Gly Val Ala Ser Cys Asp Thr Glu Gly Leu Gly Glu Met
 260 265 270
 Ile Glu Val Pro Gly Val Gly Asp Arg Thr Ser Arg Gln Val Ser Ser
 275 280 285
 Lys Val Leu Ala Ala Ile Ile Ser Ala Arg Ile Gln Glu Ile Phe Gly
 290 295 300
 Val Val Leu Gly Glu Leu Gln Lys Ser Gly Phe Pro Lys Glu Val Leu
 305 310 315 320
 Asn Ala Gly Ile Val Leu Thr Gly Gly Val Ser Met Met Thr Gly Ile
 325 330 335
 Val Glu Phe Ala Glu Lys Ile Phe Asp Leu Pro Val Arg Thr Gly Ala
 340 345 350
 Pro Gln Glu Met Gly Gly Leu Ser Asp Arg Val Arg Thr Pro Arg Phe
 355 360 365
 Ser Thr Ala Ile Gly Leu Leu His Ala Ala Cys Lys Leu Glu Gly Asn
 370 375 380
 Leu Pro Gln Pro Glu Asn Gly Ala Val Gln Glu Arg Glu Gly Gly Gly
 385 390 395 400
 Gly Leu Leu Ala Arg Leu Lys Arg Trp Ile Glu Asn Ser Phe
 405 410

<210> 49
 <211> 392
 <212> PRT
 <213> Neisseria meningitidis

<400> 49
 Met Glu Phe Val Tyr Asp Val Ala Glu Ser Ala Val Ser Pro Ala Val
 1 5 10 15
 Ile Lys Val Ile Gly Leu Gly Gly Gly Gly Cys Asn Ala Ile Asn Asn
 20 25 30
 Met Val Ala Asn Asn Val Arg Gly Val Glu Phe Ile Ser Ala Asn Thr
 35 40 45
 Asp Ala Gln Ser Leu Ala Lys Asn His Ala Ala Lys Arg Ile Gln Leu
 50 55 60
 Gly Thr Asn Leu Thr Arg Gly Leu Gly Ala Gly Ala Asn Pro Asp Ile
 65 70 75 80
 Gly Arg Ala Ala Ala Gln Glu Asp Arg Glu Ala Ile Glu Glu Ala Ile
 85 90 95

SEQLIST_PP019737.0004.txt

Arg Gly Ala Asn Met Leu Phe Ile Thr Thr Gly Met Gly Gly Gly Thr
100 105 110
Gly Thr Gly Ser Ala Pro Val Val Ala Glu Ile Ala Lys Ser Leu Gly
115 120 125
Ile Leu Thr Val Ala Val Val Thr Arg Pro Phe Ala Tyr Glu Gly Lys
130 135 140
Arg Val His Val Ala Gln Ala Gly Leu Glu Gln Leu Lys Glu His Val
145 150 155 160
Asp Ser Leu Ile Ile Ile Pro Asn Asp Lys Leu Met Thr Ala Leu Gly
165 170 175
Glu Asp Val Thr Met Arg Glu Ala Phe Arg Ala Ala Asp Asn Val Leu
180 185 190
Arg Asp Ala Val Ala Gly Ile Ser Glu Val Val Thr Cys Pro Ser Glu
195 200 205
Ile Ile Asn Leu Asp Phe Ala Asp Val Lys Thr Val Met Ser Asn Arg
210 215 220
Gly Ile Ala Met Met Gly Ser Gly Tyr Ala Gln Gly Ile Asp Arg Ala
225 230 235 240
Arg Met Ala Thr Asp Gln Ala Ile Ser Ser Pro Leu Leu Asp Asp Val
245 250 255
Thr Leu Asp Gly Ala Arg Gly Val Leu Val Asn Ile Thr Thr Ala Pro
260 265 270
Gly Cys Leu Lys Met Ser Glu Leu Ser Glu Val Met Lys Ile Val Asn
275 280 285
Gln Ser Ala His Pro Asp Leu Glu Cys Lys Phe Gly Ala Ala Glu Asp
290 295 300
Glu Thr Met Ser Glu Asp Ala Ile Arg Ile Thr Ile Ile Ala Thr Gly
305 310 315 320
Leu Lys Glu Lys Gly Ala Val Asp Phe Val Pro Ala Arg Glu Val Glu
325 330 335
Ala Val Ala Pro Ser Lys Gln Glu Gln Ser His Asn Val Glu Gly Met
340 345 350
Ile Arg Thr Asn Arg Gly Ile Arg Thr Met Asn Leu Thr Ala Ala Asp
355 360 365
Phe Asp Asn Gln Ser Val Leu Asp Asp Phe Glu Ile Pro Ala Ile Leu
370 375 380
Arg Arg Gln His Asn Ser Asp Lys
385 390

<210> 50
<211> 362
<212> PRT
<213> Neisseria meningitidis

<400> 50

SEQLIST_PP019737.0004.txt

Met Ser Gln Thr Ile Asp Glu Leu Leu Pro His Arg Asn Ala Ile
1 5 10 15
Asp Thr Ile Asp Ala Glu Ile Leu Arg Leu Leu Asn Glu Arg Ala Gln
20 25 30
His Ala His Ala Ile Gly Glu Leu Lys Gly Thr Gly Ala Val Tyr Arg
35 40 45
Pro Glu Arg Glu Val Ala Val Leu Arg Arg Ile Gln Asp Leu Asn Lys
50 55 60
Gly Pro Leu Pro Asp Glu Ser Val Ala Arg Leu Phe Arg Glu Val Met
65 70 75 80
Ser Glu Cys Leu Ala Val Glu Arg Pro Leu Thr Ile Ala Tyr Leu Gly
85 90 95
Pro Gln Gly Thr Phe Thr Gln Gln Ala Ala Ile Lys His Phe Gly His
100 105 110
Ala Ala His Thr Met Ala Cys Pro Thr Ile Asp Asp Cys Phe Lys Gln
115 120 125
Val Glu Thr Arg Gln Ala Asp Tyr Leu Val Ala Pro Val Glu Asn Ser
130 135 140
Thr Glu Gly Ser Val Gly Arg Thr Leu Asp Leu Leu Ala Val Thr Ala
145 150 155 160
Leu Gln Ala Cys Gly Glu Ile Val Leu Arg Ile His His Asn Leu Leu
165 170 175
Arg Lys Asn Asn Gly Ser Thr Glu Gly Ile Ala Lys Val Phe Ser His
180 185 190
Ala Gln Ala Leu Ala Gln Cys Asn Asp Trp Leu Gly Arg His Leu Pro
195 200 205
Asn Ala Glu Arg Ile Ala Val Ser Ser Asn Ala Glu Ala Ala Arg Leu
210 215 220
Val Ala Glu Ser Asp Asp Gly Thr Val Ala Ala Ile Ala Gly Arg Thr
225 230 235 240
Ala Ala Glu Ile Tyr Gly Leu Asp Met Val Ala Glu Cys Ile Glu Asp
245 250 255
Glu Pro Asn Asn Thr Thr Arg Phe Leu Val Met Gly His His Glu Thr
260 265 270
Gly Ala Ser Gly Ser Asp Lys Thr Ser Leu Ala Val Ser Ala Pro Asn
275 280 285
Arg Ala Gly Ala Val Ala Ser Leu Leu Gln Pro Leu Thr Glu Ser Gly
290 295 300
Ile Ser Met Thr Lys Phe Glu Ser Arg Pro Ser Lys Ser Val Leu Trp
305 310 315 320
Glu Tyr Leu Phe Phe Ile Asp Ile Glu Gly His Arg Arg Asp Ala Gln
325 330 335

Ile Gln Thr Ala Leu Glu Arg Leu Gly Glu Arg Ala Ser Phe Val Lys
340 345 350

Val Ile Gly Ser Tyr Pro Thr Ala Val Leu
355 360

<210> 51
<211> 459
<212> PRT
<213> Neisseria meningitidis

<400> 51
Met Gln Ala Phe Ser Leu Tyr Pro Pro Val Gly His Pro Asp Ser Ala
1 5 10 15

Lys Lys Arg Gln Asn Arg Ala Asp Val Phe Leu Pro Phe Trp Lys Gln
20 25 30

Asp Asn Phe Leu Gly Lys Ser Val Gln Tyr Arg Phe Glu Phe Ala Gln
35 40 45

Ile Tyr Phe Thr Met Pro Lys Pro Cys Ala Gly Val Thr Met Gly Arg
50 55 60

Gly Asp Phe Phe Phe Ser Asn Leu Phe His Gln Glu Ser Ala Arg Met
65 70 75 80

Lys Lys Ser Val Leu Ala Val Leu Ala Ala Leu Ser Leu Ala Ala Cys
85 90 95

Gly Gly Ser Glu Lys Asn Ala Val Gln Pro Gln Ala Asp Ala Ala Ser
100 105 110

Ala Ala Asn Ala Glu Ala Ala Ala Thr Asp Thr Leu Asn Ile Tyr Asn
115 120 125

Trp Ser Asn Tyr Val Asp Glu Ser Thr Val Glu Asp Phe Lys Lys Ala
130 135 140

Asn Asn Leu Lys Leu Thr Tyr Asp Leu Tyr Glu Asn Asn Glu Thr Leu
145 150 155 160

Glu Ala Lys Met Leu Thr Gly Lys Ser Gly Tyr Asp Leu Val Val Pro
165 170 175

Gly Ile Ala Phe Leu Pro Arg Gln Ile Glu Ala Gly Ala Tyr Gln Lys
180 185 190

Val Asn Lys Asp Leu Ile Pro Asn Tyr Lys Asn Ile Asp Pro Glu Leu
195 200 205

Leu Lys Met Leu Glu Thr Ala Asp Pro Gly Asn Gln Tyr Ala Val Pro
210 215 220

Tyr Phe Ser Gly Val Asn Thr Ile Ala Ile Thr Ala Lys Gly Lys Glu
225 230 235 240

Leu Leu Gly Gly Lys Leu Pro Glu Asn Gly Trp Asp Leu Leu Phe Lys
245 250 255

Pro Glu Tyr Thr His Lys Leu Lys Ser Cys Gly Ile Ala Leu Trp Asp
260 265 270

SEQLIST_PP019737.0004.txt

Thr Pro Ser Glu Met Phe Pro Ile Leu Leu Asn Tyr Leu Gly Lys Asp
 275 280 285
 Pro Lys Gly Ser Asn Pro Glu Asp Leu Lys Ala Ala Ala Glu Val Leu
 290 295 300
 Lys Ser Ile Arg Pro Asp Val Lys Arg Phe Ser Pro Ser Ile Ile Asp
 305 310 315 320
 Glu Leu Ala Arg Gly Asp Ile Cys Leu Ala Ala Gly Asn Gly Gly Asp
 325 330 335
 Leu Asn Leu Ala Lys Ala Arg Ser Glu Glu Val Lys Asn Asn Val Gly
 340 345 350
 Ile Glu Val Leu Thr Pro Lys Gly Met Gly Phe Trp Ile Glu Ser Trp
 355 360 365
 Leu Ile Pro Ala Asp Ala Lys Asn Val Ala Asn Ala His Lys Tyr Ile
 370 375 380
 Asn Tyr Thr Leu Asp Pro Glu Ile Ala Ala Lys Asn Gly Ile Ala Val
 385 390 395 400
 Thr Phe Ala Pro Ala Ser Lys Pro Ala Arg Glu Lys Met Pro Ala Glu
 405 410 415
 Leu Val Asn Thr Arg Ser Ile Phe Pro Asn Glu Gln Asp Met Lys Asp
 420 425 430
 Gly Phe Val Met Pro Gln Met Ser Thr Asp Ala Lys Lys Leu Ser Val
 435 440 445
 Ser Leu Trp Gln Lys Ile Lys Val Gly Thr Asn
 450 455

<210> 52
 <211> 602
 <212> PRT
 <213> Neisseria meningitidis

<400> 52
 Met Arg Thr Asn Tyr Cys Gly Leu Ile Ser Glu Gln Tyr Leu Asp Gln
 1 5 10 15
 Thr Val Thr Val Lys Gly Trp Val His Arg Arg Arg Asp His Gly Gly
 20 25 30
 Val Ile Phe Ile Asp Leu Arg Asp Arg Glu Gly Ile Val Gln Val Val
 35 40 45
 Ile Asp Pro Asp Thr Pro Glu Ala Phe Ala Ala Ala Asp Ser Ser Arg
 50 55 60
 Asn Glu Tyr Val Leu Ser Ile Thr Gly Arg Val Arg Asn Arg Pro Glu
 65 70 75 80
 Gly Thr Thr Asn Asp Lys Met Ile Ser Gly Lys Ile Glu Ile Leu Ala
 85 90 95
 Lys Glu Ile Glu Val Leu Asn Ala Ala Ala Thr Pro Pro Phe Gln Ile
 100 105 110

SEQLIST_PP019737.0004.txt

Asp Asp Glu Asn Ile Ser Glu Asn Val Arg Leu Thr Asn Arg Val Ile
115 120 125

Asp Leu Arg Arg Pro Val Met Gln Arg Asn Leu Arg Leu Arg Tyr Gln
130 135 140

Val Ala Met Gly Val Arg Arg Tyr Leu Asp Ala Gln Gly Phe Ile Asp
145 150 155 160

Ile Glu Thr Pro Met Leu Thr Arg Ser Thr Pro Glu Gly Ala Arg Asp
165 170 175

Tyr Leu Val Pro Ser Arg Val His Pro Gly Glu Phe Phe Ala Leu Pro
180 185 190

Gln Ser Pro Gln Leu Phe Lys Gln Leu Leu Met Val Ala Gly Phe Asp
195 200 205

Arg Tyr Tyr Gln Ile Thr Lys Cys Phe Arg Asp Glu Asp Leu Arg Ala
210 215 220

Asp Arg Gln Pro Glu Phe Thr Gln Ile Asp Leu Glu Thr Ser Phe Leu
225 230 235 240

Asn Glu Asp Glu Ile Met Asp Ile Thr Glu Gly Met Ala Lys Gln Val
245 250 255

Phe Lys Asp Ala Leu Asn Val Asp Leu Gly Asp Phe Pro Arg Met Pro
260 265 270

Tyr Ser Glu Ala Met Phe Tyr Tyr Gly Ser Asp Lys Pro Asp Met Arg
275 280 285

Ile Asn Leu Lys Phe Thr Glu Leu Thr Asp Leu Met Lys Thr Glu Glu
290 295 300

Phe Lys Val Phe Arg Gly Ala Ala Asp Met Lys Gly Gly Arg Val Val
305 310 315 320

Ala Leu Arg Val Pro Asn Gly Ala Glu Phe Ser Arg Lys Glu Ile Asp
325 330 335

Glu Tyr Thr Lys Phe Val Gly Ile Tyr Gly Ala Lys Gly Leu Ala Tyr
340 345 350

Ile Lys Val Asn Asp Val Ser Asn Leu Ser Asn Gly Glu Asp Ser Gly
355 360 365

Leu Gln Ser Pro Ile Val Lys Tyr Leu Ser Glu Asn Ala Leu Lys Glu
370 375 380

Ile Ile Ala Arg Thr Gly Ala Gln Asn Gly Asp Ile Ile Phe Phe Gly
385 390 395 400

Ala Asp Lys Ala Lys Val Val Asn Glu Ala Ile Gly Ala Leu Arg Ile
405 410 415

Lys Val Gly Leu Glu His Gly Lys Asp Asn Gly Tyr Phe Thr Asp Glu
420 425 430

Trp Lys Pro Leu Trp Val Val Asp Phe Pro Met Phe Glu Tyr Asp Glu
435 440 445

SEQLIST_PP019737.0004.txt

Glu Ala Asp Arg Tyr Val Ala Val His His Pro Phe Thr Ala Pro Lys
450 455 460

Glu Gly His Glu Asp Leu Met Val Ser Asp Pro Ala Asn Cys Leu Ala
465 470 475 480

Arg Ala Tyr Asp Met Val Leu Asn Gly Trp Glu Ile Gly Gly Gly Ser
485 490 495

Ile Arg Ile His Arg Ala Asp Val Gln Glu Lys Val Phe Ala Ala Leu
500 505 510

Lys Ile Ser Pro Glu Glu Gln Gln Glu Lys Phe Gly Phe Leu Leu Asp
515 520 525

Asn Leu Lys Phe Gly Ala Pro Pro His Gly Gly Leu Ala Phe Gly Leu
530 535 540

Asp Arg Leu Val Thr Leu Met Thr Gly Ala Glu Ser Ile Arg Asp Val
545 550 555 560

Ile Ala Phe Pro Lys Thr Gln Arg Ala Gln Cys Leu Leu Thr Asn Ala
565 570 575

Pro Asn Ser Val Asp Asp Lys Gln Leu Arg Glu Leu Ser Leu Arg Leu
580 585 590

Arg Gln Lys Ala Thr Glu Thr Lys Glu Val
595 600

<210> 53
<211> 178
<212> PRT
<213> Neisseria meningitidis

<400> 53
Met Arg Glu Asn Lys Ile Ile Phe Thr Gly Pro Val Gly Val Gly Lys
1 5 10 15

Thr Thr Ala Ile Ala Ala Ile Ser Asp Glu Ala Leu Val Gln Thr Asp
20 25 30

Ala Ser Ala Ser Asp Met Thr Leu Asp Arg Lys Arg Asn Thr Thr Val
35 40 45

Ala Met Asp Tyr Gly Ala Ile Ser Leu Asp Glu Asp Thr Lys Val His
50 55 60

Leu Tyr Gly Thr Pro Gly Gln Glu Arg Phe Asn Phe Met Trp Glu Ile
65 70 75 80

Leu Ser Gln Gly Ser Met Gly Leu Val Leu Leu Leu Asp Asn Ala Arg
85 90 95

Thr Asn Pro Leu Lys Asp Leu Glu Phe Phe Leu His Ser Phe Arg Gly
100 105 110

Leu Leu Glu Lys Ala Pro Val Val Val Gly Ile Thr Lys Met Asp Ile
115 120 125

Arg Ser Gln Pro Gly Ile Asp Val Tyr His Lys Tyr Leu Ala Lys His
130 135 140

SEQLIST_PP019737.0004.txt

Asn Leu Asn Val Pro Val Phe Glu Ile Asp Ala Arg Lys Glu Asp Asp
145 150 155 160

Val Lys Gln Leu Val Ser Ala Met Leu Phe Ser Ile Asp Pro Gly Leu
165 170 175

Glu Val

<210> 54

<211> 361

<212> PRT

<213> Neisseria meningitidis

<400> 54

Met Thr Val Pro His Ile Pro Arg Gly Pro Val Met Ala Asp Ile Ala
1 5 10 15

Ala Phe Arg Leu Thr Glu Glu Glu Lys Gln Arg Leu Leu Asp Pro Ala
20 25 30

Val Gly Gly Ile Ile Leu Phe Arg Arg Asn Phe Gln Asn Ile Glu Gln
35 40 45

Leu Lys Thr Leu Thr Ala Glu Ile Lys Ala Leu Arg Thr Pro Glu Leu
50 55 60

Ile Ile Ala Val Asp His Glu Gly Gly Arg Val Gln Arg Phe Ile Glu
65 70 75 80

Gly Phe Thr Arg Leu Pro Ala Met Ser Thr Leu Gly Glu Ile Trp Asp
85 90 95

Lys Asp Gly Ala Ser Ala Ala Glu Thr Ala Ala Gly Gln Val Gly Arg
100 105 110

Val Leu Ala Thr Glu Leu Ser Ala Cys Gly Ile Asp Leu Ser Phe Thr
115 120 125

Pro Val Leu Asp Leu Asp Trp Gly Asn Cys Pro Val Ile Gly Asn Arg
130 135 140

Ser Phe His Arg Asn Pro Glu Ala Val Ala Arg Leu Ala Leu Ala Leu
145 150 155 160

Gln Lys Gly Leu Thr Lys Gly Gly Met Lys Ser Cys Gly Lys His Phe
165 170 175

Pro Gly His Gly Phe Val Glu Gly Asp Ser His Leu Val Leu Pro Glu
180 185 190

Asp Trp Arg Ser Leu Ser Glu Leu Glu Thr Ala Asp Leu Ala Pro Phe
195 200 205

Arg Ile Met Ser Arg Glu Gly Met Ala Ala Val Met Pro Ala His Val
210 215 220

Val Tyr Pro Gln Val Asp Thr Lys Pro Ala Gly Phe Ser Glu Ile Trp
225 230 235 240

Leu Lys Gln Ile Leu Arg Arg Asp Ile Gly Phe Lys Gly Val Ile Phe
245 250 255

SEQLIST_PP019737.0004.txt

Ser Asp Asp Leu Thr Met Glu Gly Ala Cys Gly Ala Gly Gly Ile Lys
260 265 270

Glu Arg Ala Arg Ile Ser Phe Glu Ala Gly Cys Asp Ile Val Leu Val
275 280 285

Cys Asn Arg Pro Asp Leu Val Asp Glu Leu Arg Glu Asp Phe Arg Ile
290 295 300

Pro Asp Asn Pro Thr Leu Ala Gln Arg Trp Gln Tyr Met Ala Asn Thr
305 310 315 320

Leu Gly Ser Ala Ala Ala Gln Ala Val Met Gln Thr Ala Asp Phe Gln
325 330 335

Ala Ala Gln Ala Phe Val Ala Gly Leu Ala Ser Pro Gln Asp Thr Ala
340 345 350

Gly Gly Val Lys Val Gly Glu Ala Phe
355 360

<210> 55
<211> 397
<212> PRT
<213> Neisseria meningitidis

<400> 55
Met Phe Phe Lys His Ile Glu Ala Ala Pro Ala Asp Pro Ile Leu Gly
1 5 10 15

Leu Gly Glu Ala Phe Lys Ala Glu Thr Arg Pro Glu Lys Val Asn Leu
20 25 30

Gly Ile Gly Val Tyr Lys Asp Ala Ser Gly Ala Thr Pro Leu Val Lys
35 40 45

Ala Val Lys Glu Ala Glu Lys Arg Leu Leu Glu Ser Glu Thr Thr Lys
50 55 60

Asn Tyr Leu Thr Ile Asp Gly Val Ala Asp Tyr Asn Ala Gln Thr Gln
65 70 75 80

Ile Leu Leu Phe Gly Lys Asp His Glu Ile Ile Ala Ser Arg Arg Ala
85 90 95

Lys Thr Ala Gln Ser Leu Gly Gly Thr Gly Ala Leu Arg Ile Ala Ala
100 105 110

Glu Phe Ala Lys Arg Gln Leu Asn Ala Gln Thr Ile Trp Ile Ser Asn
115 120 125

Pro Thr Trp Pro Asn His Asn Ala Ile Ala Lys Ala Val Gly Ile Gln
130 135 140

Asp Lys Pro Tyr Arg Tyr Tyr Asp Ala Ala Lys His Gly Leu Asp Trp
145 150 155 160

Asp Gly Met Ile Glu Asp Leu Ser Gln Ala Gln Lys Gly Asp Ile Val
165 170 175

Leu Leu His Gly Cys Cys His Asn Pro Thr Gly Ile Asp Pro Thr Pro
180 185 190

SEQLIST_PP019737.0004.txt

Glu Gln Trp Glu Thr Leu Ala Lys Leu Ser Ala Glu Lys Gly Trp Leu
195 200 205

Pro Leu Phe Asp Phe Ala Tyr Gln Gly Phe Gly Asn Gly Leu Glu Glu
210 215 220

Asp Ala Tyr Gly Leu Arg Val Phe Leu Lys His Asn Thr Glu Leu Leu
225 230 235 240

Ile Ala Ser Ser Tyr Ser Lys Asn Phe Gly Met Tyr Asn Glu Arg Val
245 250 255

Gly Ala Phe Thr Leu Val Ala Glu Asp Glu Glu Thr Ala Ala Arg Ala
260 265 270

His Ser Gln Val Lys Thr Ile Ile Arg Thr Leu Tyr Ser Asn Pro Ala
275 280 285

Ser His Gly Ala Asn Thr Ile Ala Leu Val Leu Lys Asn Asp Asp Leu
290 295 300

Lys Ala Gln Trp Ile Ala Glu Leu Asp Glu Met Arg Gly Arg Ile Lys
305 310 315 320

Ala Met Arg Gln Lys Phe Val Gly Leu Leu Lys Ala Lys Gly Ala Ser
325 330 335

Gln Asn Phe Asp Phe Ile Ile Lys Gln Asn Gly Met Phe Ser Phe Ser
340 345 350

Gly Leu Thr Pro Glu Gln Val Asp Arg Leu Lys Asn Glu Phe Ala Ile
355 360 365

Tyr Ala Val Arg Ser Gly Arg Ile Asn Val Ala Gly Ile Thr Asp Asn
370 375 380

Asn Ile Asp Tyr Leu Cys Glu Ser Ile Val Lys Val Leu
385 390 395

<210> 56
<211> 348
<212> PRT
<213> Neisseria meningitidis

<400> 56
Met Lys Met Gln Ala Val Val Val Asn Lys Asn Val Ala Gly Asp Val
1 5 10 15

Glu Val Ile Glu Arg Glu Val Arg Pro Leu Glu Tyr Gly Glu Ala Leu
20 25 30

Val Glu Val Glu Tyr Cys Gly Val Cys His Thr Asp Leu His Val Ala
35 40 45

Ala Gly Asp Tyr Gly Glu Lys Pro Gly Arg Val Leu Gly His Glu Gly
50 55 60

Ile Gly Leu Val Lys Glu Val Ala Asp Gly Val Lys Asn Leu Lys Val
65 70 75 80

Gly Asp Arg Val Ser Ile Ala Trp Leu Phe Gln Ser Cys Gly Ser Cys
85 90 95

SEQLIST_PP019737.0004.txt

Glu Tyr Cys Asn Thr Gly Arg Glu Thr Leu Cys Arg Ser Val Leu Asn
100 105 110
Ala Gly Tyr Thr Ala Asp Gly Gly Met Ala Thr His Cys Ile Val Ser
115 120 125
Ala Asp Tyr Ala Val Lys Val Pro Glu Gly Leu Asp Pro Ala Gln Ala
130 135 140
Ser Ser Ile Thr Cys Ala Gly Val Thr Thr Tyr Lys Ala Ile Lys Val
145 150 155 160
Ser Gly Val Arg Pro Gly Gln Trp Ile Ala Ile Tyr Gly Ala Gly Gly
165 170 175
Leu Gly Asn Leu Gly Val Gln Tyr Ala Lys Lys Val Phe Gly Ala His
180 185 190
Val Val Ala Ile Asp Ile Asn Asp Asp Lys Leu Ala Phe Ala Lys Glu
195 200 205
Thr Gly Ala Asp Leu Val Val Asn Ala Ala Lys Glu Asp Ala Ala Lys
210 215 220
Val Ile Gln Glu Lys Thr Gly Gly Ala His Ala Ala Val Val Thr Ala
225 230 235 240
Val Ser Ala Ala Ala Phe Asn Ser Ala Val Asn Cys Val Arg Ala Gly
245 250 255
Gly Arg Val Val Ala Ile Gly Leu Pro Pro Glu Ser Met Asp Leu Ser
260 265 270
Ile Pro Arg Leu Val Leu Asp Gly Ile Glu Val Val Gly Ser Leu Val
275 280 285
Gly Thr Arg Lys Asp Leu Glu Glu Ala Phe Gln Phe Gly Ala Glu Gly
290 295 300
Leu Val Val Pro Lys Val Gln Leu Arg Ala Leu Asp Glu Ala Pro Ala
305 310 315 320
Ile Phe Gln Glu Met Arg Glu Gly Lys Ile Thr Gly Arg Met Val Ile
325 330 335
Asp Met Lys Lys Glu Cys Gly Cys Gly His His His
340 345

<210> 57
<211> 405
<212> PRT
<213> Neisseria meningitidis

<400> 57
Met Glu Ile Ile Leu Gly Ile Val Met Phe Thr Val Ile Val Leu Val
1 5 10 15
Leu Ala Leu Met Ile Leu Phe Ala Lys Ser Lys Leu Val Ser Glu Gly
20 25 30
Asp Ile Thr Ile Lys Val Asn Gly Glu Lys Glu Leu Thr Met Pro Ala
35 40 45

SEQLIST_PP019737.0004.txt

Gly Gly Lys Leu Leu Gly Ala Leu Ala Asn Glu Gly Ile Phe Ile Pro
50 55 60

Ser Ala Cys Gly Gly Gly Gly Ser Cys Gly Gln Cys Arg Val Val Val
65 70 75 80

Lys Ser Gly Gly Gly Asp Ile Leu Pro Thr Glu Leu Ser His Ile Ser
85 90 95

Lys Arg Glu Ala Arg Glu Gly Cys Arg Leu Ser Cys Gln Val Asn Val
100 105 110

Lys Thr Asp Met Asp Ile Glu Val Pro Glu Glu Val Phe Gly Val Lys
115 120 125

Lys Trp Glu Cys Thr Val Ile Ser Asn Asp Asn Lys Ala Thr Phe Ile
130 135 140

Lys Glu Leu Lys Leu Ala Ile Pro Glu Gly Glu Glu Val Pro Phe Arg
145 150 155 160

Ala Gly Gly Tyr Ile Gln Ile Glu Ala Pro Pro His Thr Val Ala Tyr
165 170 175

Lys Asp Phe Asp Ile Pro Lys Glu Tyr His Glu Asp Trp Asp Lys Tyr
180 185 190

Asn Leu Trp Gln Tyr Val Ser Lys Val Asp Glu Pro Ile Leu Arg Ala
195 200 205

Tyr Ser Met Ala Ser Tyr Pro Glu Glu Lys Gly Ile Ile Met Leu Asn
210 215 220

Val Arg Ile Ala Thr Pro Pro Pro Arg Val Pro Asp Ala Pro Pro Gly
225 230 235 240

Gln Met Ser Ser Tyr Ile Trp Ser Leu Lys Pro Gly Asp Lys Val Thr
245 250 255

Ile Ser Gly Pro Phe Gly Glu Phe Phe Ala Lys Asp Thr Asp Ala Glu
260 265 270

Met Val Phe Ile Gly Gly Gly Ala Gly Met Ala Pro Met Arg Ser His
275 280 285

Ile Phe Asp Gln Leu Lys Arg Leu Asn Ser Lys Arg Lys Ile Thr Phe
290 295 300

Trp Tyr Gly Ala Arg Ser Lys Arg Glu Met Phe Tyr Val Glu Asp Phe
305 310 315 320

Asp Gln Leu Ala Ala Glu Phe Pro Asn Phe Thr Trp His Val Ala Leu
325 330 335

Ser Asp Pro Leu Pro Glu Asp Asn Trp Asp Gly Tyr Thr Gly Phe Ile
340 345 350

His Asn Val Val Tyr Glu Asn His Leu Lys Asn His Glu Ala Pro Glu
355 360 365

Asp Cys Glu Phe Tyr Met Cys Gly Pro Pro Ile Met Asn Gln Ser Val
370 375 380

SEQLIST_PP019737.0004.txt

Ile Lys Met Leu Lys Asp Leu Gly Val Glu Asp Glu Asn Ile Leu Leu
385 390 395 400

Asp Asp Phe Gly Gly
405

<210> 58
<211> 121
<212> PRT
<213> Neisseria meningitidis

<400> 58
Met Asn Leu Ile Gln Gln Leu Glu Gln Glu Glu Ile Ala Arg Leu Asn
1 5 10 15

Lys Glu Ile Pro Glu Phe Ala Pro Gly Asp Thr Val Val Val Ser Val
20 25 30

Arg Val Val Glu Gly Thr Arg Ser Arg Leu Gln Ala Tyr Glu Gly Val
35 40 45

Val Ile Ala Arg Arg Asn Arg Gly Leu Asn Ser Asn Phe Ile Val Arg
50 55 60

Lys Ile Ser Ser Gly Glu Gly Val Glu Arg Thr Phe Gln Leu Tyr Ser
65 70 75 80

Pro Thr Val Glu Lys Ile Glu Val Lys Arg Arg Gly Asp Val Arg Arg
85 90 95

Ala Lys Leu Tyr Tyr Leu Arg Gly Leu Thr Gly Lys Ala Ala Arg Ile
100 105 110

Lys Glu Lys Leu Pro Ala Arg Lys Gly
115 120

<210> 59
<211> 225
<212> PRT
<213> Neisseria meningitidis

<400> 59
Met Ser Arg Val Leu Leu Val Asp Asp Asp Ala Leu Leu Thr Glu Leu
1 5 10 15

Leu Thr Glu Tyr Leu Ser Ala Glu Gly Leu Asn Val Arg Ser Val Pro
20 25 30

Asp Gly Glu Ala Gly Val Gln Glu Ile Leu Ser Gly Gln Tyr Asp Val
35 40 45

Val Val Leu Asp Ser Met Met Pro Lys Met Asn Gly Leu Asp Val Leu
50 55 60

Lys Asn Val Arg Ala Arg Ser Thr Val Pro Ile Ile Met Leu Thr Ala
65 70 75 80

Lys Gly Asp Asp Ile Asp Arg Ile Ile Gly Leu Glu Met Gly Ala Asp
85 90 95

Asp Tyr Val Pro Lys Pro Cys Thr Pro Arg Glu Leu Leu Ala Arg Ile
100 105 110

SEQLIST_PP019737.0004.txt

Asn Ala Ile Leu Arg Arg Ala Gln His Ser Gly Glu Gln Asn Asn Ala
 115 120 125
 Pro Asn Ser Ile Ser Val Ser Asp Val Val Leu Tyr Pro Ala Lys Arg
 130 135 140
 Gln Ala Ser Val Lys Asp Met Pro Leu Glu Leu Thr Ser Thr Glu Phe
 145 150 155 160
 Asn Leu Leu Glu Val Leu Met Arg His Ala Gly Gln Val Val Ser Lys
 165 170 175
 Glu Thr Leu Ser Val Glu Ala Leu Asp Arg Lys Leu Ala Lys Phe Asp
 180 185 190
 Arg Ser Ile Asp Val His Ile Ser Ser Ile Arg His Lys Leu Gly Asp
 195 200 205
 Ala Ser Leu Ile Gln Thr Val Arg Gly Leu Gly Tyr Leu Phe Val Lys
 210 215 220

Asn
 225

<210> 60
 <211> 354
 <212> PRT
 <213> Neisseria meningitidis

<400> 60
 Met Lys Ala Ala Arg Phe Tyr Asp Lys Gly Asp Ile Arg Ile Glu Asp
 1 5 10 15
 Ile Pro Glu Pro Thr Val Ala Pro Gly Thr Val Gly Ile Asn Val Ala
 20 25 30
 Trp Cys Gly Ile Cys Gly Thr Asp Leu His Glu Phe Met Glu Gly Pro
 35 40 45
 Ile Phe Ile Pro Pro Cys Gly His Pro His Pro Ile Ser Gly Glu Ser
 50 55 60
 Ala Pro Val Thr Met Gly His Glu Phe Ser Gly Val Val Tyr Ala Val
 65 70 75 80
 Gly Glu Gly Val Asp Asp Ile Lys Val Gly Gln His Val Val Val Glu
 85 90 95
 Pro Tyr Ile Ile Arg Asp Asp Val Pro Thr Gly Glu Gly Ser Asn Tyr
 100 105 110
 His Leu Ser Lys Asp Met Asn Phe Ile Gly Leu Gly Gly Cys Gly Gly
 115 120 125
 Gly Leu Ser Glu Lys Ile Ala Val Lys Arg Arg Trp Val His Pro Ile
 130 135 140
 Ser Asp Lys Ile Pro Leu Asp Gln Ala Ala Leu Ile Glu Pro Leu Ser
 145 150 155 160
 Val Gly His His Ala Tyr Val Arg Ser Gly Ala Lys Glu Gly Asp Val
 165 170 175

SEQLIST_PP019737.0004.txt

Ala Leu Val Gly Gly Ala Gly Pro Ile Gly Leu Leu Leu Ala Ala Val
180 185 190
Leu Lys Ala Lys Gly Ile Lys Val Ile Ile Thr Glu Leu Ser Lys Ala
195 200 205
Arg Lys Asp Lys Ala Arg Glu Ser Gly Val Ala Asp Tyr Ile Leu Asp
210 215 220
Pro Ser Glu Val Asp Val Val Ala Glu Val Lys Lys Leu Thr Asn Gly
225 230 235 240
Glu Gly Val Asp Val Ala Phe Glu Cys Thr Ser Val Asn Lys Val Leu
245 250 255
Asp Thr Leu Val Glu Ala Cys Lys Pro Ala Ala Asn Leu Val Ile Val
260 265 270
Ser Ile Trp Ser His Pro Ala Thr Ile Asn Val His Ser Val Val Met
275 280 285
Lys Glu Leu Asp Val Arg Gly Thr Ile Ala Tyr Cys Asn Asp His Ala
290 295 300
Glu Thr Ile Lys Leu Val Glu Glu Gly Lys Ile Asn Leu Glu Pro Phe
305 310 315 320
Ile Thr Gln Arg Ile Lys Leu Asp Glu Leu Val Ser Lys Gly Phe Glu
325 330 335
Arg Leu Ile His Asn Asn Glu Ser Ala Val Lys Ile Ile Val Ser Pro
340 345 350

Asn Leu

<210> 61
<211> 419
<212> PRT
<213> Neisseria meningitidis

<400> 61
Met Leu Pro Val Arg Phe Thr Arg Val Ser Asp Gly Ile Lys Arg Leu
1 5 10 15
Thr Pro Ala Ser Asn Gln Thr Ala Phe Tyr His Pro Phe Glu Asn Pro
20 25 30
Phe Cys Arg Tyr Ser Ser Phe Tyr Trp Ser Ile Ala Ile Met Thr Ala
35 40 45
Thr Thr Ala Ser Ser Ala Lys Pro Tyr Leu Lys Ile Gln Gly Leu Val
50 55 60
Lys Lys Phe Gly Asp Asn Tyr Ala Val Asp Asn Ile Asp Leu Asp Ile
65 70 75 80
Tyr Gln His Glu Ile Phe Ala Leu Leu Gly Ser Ser Gly Ser Gly Lys
85 90 95
Ser Thr Leu Leu Arg Met Leu Ala Gly Met Glu Ser Pro Asn Gln Gly
100 105 110

SEQLIST_PP019737.0004.txt

Lys Ile Ile Leu Asp Gly Gln Asp Ile Thr Lys Leu Ala Pro Tyr Asp
115 120 125
Arg Pro Ile Asn Met Met Phe Gln Ser Tyr Ala Leu Phe Pro His Met
130 135 140
Thr Val Glu Gln Asn Ile Ala Phe Gly Leu Lys Gln Asp Lys Met Pro
145 150 155 160
Lys Gly Glu Ile Ala Ala Arg Val Glu Glu Met Leu Arg Leu Val Gln
165 170 175
Met Thr Lys Phe Ala Lys Arg Lys Pro His Gln Leu Ser Gly Gly Gln
180 185 190
Gln Gln Arg Ile Ala Leu Ala Arg Ser Leu Ala Lys Arg Pro Lys Ile
195 200 205
Leu Leu Leu Asp Glu Pro Leu Gly Ala Leu Asp Lys Lys Leu Arg Gln
210 215 220
Gln Thr Gln Leu Glu Leu Val Asn Thr Leu Glu Gln Val Gly Val Thr
225 230 235 240
Cys Ile Met Val Thr His Asp Gln Glu Glu Ala Met Thr Met Ala Thr
245 250 255
Arg Ile Ala Ile Met Ser Asp Gly Gln Leu Gln Gln Val Gly Thr Pro
260 265 270
Ser Asp Val Tyr Asp Tyr Pro Asn Ser Arg Phe Thr Ala Glu Phe Ile
275 280 285
Gly Glu Thr Asn Ile Phe Asp Gly Val Val Ile Glu Asp His Ala Asp
290 295 300
Tyr Ala Val Ile Glu Cys Glu Gly Leu Glu Asn His Val Arg Ile Asp
305 310 315 320
His Gly Leu Gly Gly Pro Ser Glu Gln Asp Leu Trp Val Ser Ile Arg
325 330 335
Pro Glu Asp Ile Asp Leu Tyr Lys Glu Lys Pro Glu Tyr Leu Gly Asp
340 345 350
Tyr Asn Trp Ala Lys Gly Thr Val Lys Glu Ile Ala Tyr Leu Gly Ser
355 360 365
Phe Ala Ile Tyr His Ile Lys Leu Gly Asn Gly Arg Val Val Lys Ser
370 375 380
Gln Val Pro Ala Pro Tyr Trp Tyr Val Arg Asn Ile Thr Pro Pro Thr
385 390 395 400
Trp Asp Glu Thr Val Tyr Ile Ser Trp Pro Glu Asn Gln Pro Thr Pro
405 410 415
Leu Phe Arg

<210> 62
<211> 419
<212> PRT

<213> Neisseria meningitidis

<400> 62

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Met His Val Ser Glu Leu Gln Thr Leu His Ile Ser Lys Leu Leu Glu
1      5      10      15
Leu Ala Glu Glu His Gly Ile Glu Asn Ala Asn Arg Phe Arg Lys Gln
20     25     30
Asp Leu Val Phe Ala Ile Val Arg Gln Met Met Lys Lys Gly Glu Gly
35     40     45
Phe Thr Cys Ser Gly Thr Leu Glu Ile Leu Pro Asp Gly Phe Gly Phe
50     55     60
Leu Arg Ser Ala Asp Thr Ser Tyr Leu Ala Gly Pro Asp Asp Ile Tyr
65     70     75     80
Val Ser Pro Thr Gln Ile Arg Arg Phe Asn Leu His Thr Gly Asp Thr
85     90     95
Ile Glu Gly Ser Val Arg Val Pro Lys Asp Asn Glu Arg Tyr Phe Ala
100    105    110
Leu Val Arg Leu Asp Thr Ile Asn Gly Asp His Pro Glu Val Cys Arg
115    120    125
His Lys Ile Leu Phe Glu Asn Leu Thr Pro Leu Phe Pro Thr Glu Gln
130    135    140
Leu Lys Leu Glu Arg Asp Leu Lys Ser Glu Glu Asn Leu Thr Gly Arg
145    150    155    160
Ala Ile Asp Leu Ile Ser Pro Ile Gly Lys Gly Gln Arg Ala Leu Leu
165    170    175
Val Ala Pro Pro Lys Ser Gly Lys Thr Val Met Leu Gln Asn Ile Ala
180    185    190
His Ala Val Thr Ala Asn Tyr Pro Glu Val Glu Leu Ile Val Leu Leu
195    200    205
Ile Asp Glu Arg Pro Glu Glu Val Thr Glu Met Ser Arg Ser Val Arg
210    215    220
Gly Glu Val Val Ser Ser Thr Phe Asp Glu Pro Ala Gln Arg His Val
225    230    235    240
Gln Val Ala Glu Met Val Leu Glu Lys Ala Lys Arg Met Val Glu His
245    250    255
Lys Lys Asp Val Val Ile Leu Leu Asp Ser Ile Thr Arg Leu Ala Arg
260    265    270
Ala Tyr Asn Thr Val Val Pro Thr Ser Gly Lys Ile Leu Thr Gly Gly
275    280    285
Val Asp Ala Asn Ala Leu His Arg Pro Lys Arg Phe Phe Gly Ala Ala
290    295    300
Arg Asn Val Glu Glu Gly Gly Ser Leu Thr Ile Ile Ala Thr Ala Leu
305    310    315    320

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SEQLIST_PP019737.0004.txt

Val Glu Thr Gly Ser Arg Met Asp Asp Val Ile Tyr Glu Glu Phe Lys
 325 330 335
 Gly Thr Gly Asn Met Glu Leu His Leu Asp Arg Arg Met Ala Glu Lys
 340 345 350
 Arg Leu Phe Pro Ala Ile Asn Ile Asn Lys Ser Gly Thr Arg Arg Glu
 355 360 365
 Glu Leu Leu Val Pro Asn Asp Gln Leu Gln Arg Met Trp Leu Leu Arg
 370 375 380
 Lys Phe Leu His Pro Met Asp Glu Ile Glu Ala Ala Glu Phe Leu Ile
 385 390 395 400
 Gly Lys Ile Lys Ala Ser Lys Asn Asn Asp Asp Phe Phe Glu Leu Met
 405 410 415
 Arg Gly Lys

<210> 63
 <211> 794
 <212> PRT
 <213> Neisseria meningitidis

<400> 63
 Met Ala Asp Asn Tyr Val Ile Trp Phe Glu Asn Leu Arg Met Thr Asp
 1 5 10 15
 Val Glu Arg Val Gly Gly Lys Asn Ala Ser Leu Gly Glu Met Ile Ser
 20 25 30
 Gln Leu Thr Glu Lys Gly Val Arg Val Pro Gly Gly Phe Ala Thr Thr
 35 40 45
 Ala Glu Ala Tyr Arg Ala Phe Leu Ala His Asn Gly Leu Ser Glu Arg
 50 55 60
 Ile Ser Ala Ala Leu Ala Lys Leu Asp Val Glu Asp Val Ala Glu Leu
 65 70 75 80
 Ala Arg Val Gly Lys Glu Ile Arg Gln Trp Ile Leu Asp Thr Pro Phe
 85 90 95
 Pro Glu Gln Leu Asp Ala Glu Ile Glu Ala Ala Trp Asn Lys Met Val
 100 105 110
 Ala Asp Ala Gly Gly Ala Asp Ile Ser Val Ala Val Arg Ser Ser Ala
 115 120 125
 Thr Ala Glu Asp Leu Pro Asp Ala Ser Phe Ala Gly Gln Gln Glu Thr
 130 135 140
 Phe Leu Asn Ile Asn Gly Leu Asp Asn Val Lys Glu Ala Met His His
 145 150 155 160
 Val Phe Ala Ser Leu Tyr Asn Asp Arg Ala Ile Ser Tyr Arg Val His
 165 170 175
 Lys Gly Phe Glu His Asp Ile Val Ala Leu Ser Ala Gly Val Gln Arg
 180 185 190

SEQLIST_PP019737.0004.txt

Met Val Arg Ser Asp Ser Gly Ala Ser Gly Val Met Phe Thr Leu Asp
195 200 205

Thr Glu Ser Gly Tyr Asp Gln Val Val Phe Val Thr Ser Ser Tyr Gly
210 215 220

Leu Gly Glu Asn Val Val Gln Gly Ala Val Asn Pro Asp Glu Phe Tyr
225 230 235 240

Val Phe Lys Pro Thr Leu Lys Ala Gly Lys Pro Ala Ile Leu Arg Lys
245 250 255

Thr Met Gly Ser Lys His Ile Lys Met Ile Phe Thr Asp Lys Ala Glu
260 265 270

Ala Gly Lys Ser Val Thr Asn Val Asp Val Pro Glu Glu Asp Arg Asn
275 280 285

Arg Phe Ser Ile Thr Asp Glu Glu Ile Thr Glu Leu Ala His Tyr Ala
290 295 300

Leu Thr Ile Glu Lys His Tyr Gly Arg Pro Met Asp Ile Glu Trp Gly
305 310 315 320

Arg Asp Gly Leu Asp Gly Lys Leu Tyr Ile Leu Gln Ala Arg Pro Glu
325 330 335

Thr Val Lys Ser Gln Glu Glu Gly Asn Arg Asn Leu Arg Arg Phe Ala
340 345 350

Ile Asn Gly Asp Lys Thr Val Leu Cys Glu Gly Arg Ala Ile Gly Gln
355 360 365

Lys Val Gly Gln Gly Lys Val Arg Leu Ile Lys Asp Ala Ser Glu Met
370 375 380

Asp Ser Val Glu Ala Gly Asp Val Leu Val Thr Asp Met Thr Asp Pro
385 390 395 400

Asp Trp Glu Pro Val Met Lys Arg Ala Ser Ala Ile Val Thr Asn Arg
405 410 415

Gly Gly Arg Thr Cys His Ala Ala Ile Ile Ala Arg Glu Leu Gly Ile
420 425 430

Pro Ala Val Val Gly Cys Gly Asn Ala Thr Glu Leu Leu Lys Asn Gly
435 440 445

Gln Glu Val Thr Val Ser Cys Ala Glu Gly Asp Thr Gly Phe Ile Tyr
450 455 460

Ala Gly Leu Leu Asp Val Gln Ile Thr Asp Val Ala Leu Asp Asn Met
465 470 475 480

Pro Lys Ala Pro Val Lys Val Met Met Asn Val Gly Asn Pro Glu Leu
485 490 495

Ala Phe Ser Phe Ala Asn Leu Pro Ser Glu Gly Ile Gly Leu Ala Arg
500 505 510

Met Glu Phe Ile Ile Asn Arg Gln Ile Gly Ile His Pro Lys Ala Leu
515 520 525

SEQLIST_PP019737.0004.txt

Leu Glu Phe Asp Lys Gln Asp Asp Glu Leu Lys Ala Glu Ile Thr Arg
 530 535 540
 Arg Ile Ala Gly Tyr Ala Ser Pro Val Asp Phe Tyr Val Asp Lys Ile
 545 550 555 560
 Ala Glu Gly Val Ala Thr Leu Ala Ala Ser Val Tyr Pro Arg Lys Thr
 565 570 575
 Ile Val Arg Met Ser Asp Phe Lys Ser Asn Glu Tyr Ala Asn Leu Val
 580 585 590
 Gly Gly Asn Val Tyr Glu Pro His Glu Glu Asn Pro Met Leu Gly Phe
 595 600 605
 Arg Gly Ala Ala Arg Tyr Val Ala Asp Asn Phe Lys Asp Cys Phe Ala
 610 615 620
 Leu Glu Cys Lys Ala Leu Lys Arg Val Arg Asp Glu Met Gly Leu Thr
 625 630 635 640
 Asn Val Glu Ile Met Ile Pro Phe Val Arg Thr Leu Gly Glu Ala Glu
 645 650 655
 Ala Val Val Lys Ala Leu Lys Glu Asn Gly Leu Glu Arg Gly Lys Asn
 660 665 670
 Gly Leu Arg Leu Ile Met Met Cys Glu Leu Pro Ser Asn Ala Val Leu
 675 680 685
 Ala Glu Gln Phe Leu Gln Tyr Phe Asp Gly Phe Ser Ile Gly Ser Asn
 690 695 700
 Asp Met Thr Gln Leu Thr Leu Gly Leu Asp Arg Asp Ser Gly Leu Val
 705 710 715 720
 Ser Glu Ser Phe Asp Glu Arg Asn Pro Ala Val Lys Val Met Leu His
 725 730 735
 Leu Ala Ile Ser Ala Cys Arg Lys Gln Asn Lys Tyr Val Gly Ile Cys
 740 745 750
 Gly Gln Gly Pro Ser Asp His Pro Asp Phe Ala Lys Trp Leu Val Glu
 755 760 765
 Glu Gly Ile Glu Ser Val Ser Leu Asn Pro Asp Thr Val Ile Glu Thr
 770 775 780
 Trp Leu Tyr Leu Ala Asn Glu Leu Asn Lys
 785 790
 <210> 64
 <211> 379
 <212> PRT
 <213> Neisseria meningitidis
 <400> 64
 Met Lys Lys Thr Leu Val Ala Ala Ala Ile Leu Ser Leu Ala Leu Thr
 1 5 10 15
 Ala Cys Gly Gly Gly Ser Asp Thr Ala Ala Gln Thr Pro Ser Ala Lys
 20 25 30

SEQLIST_PP019737.0004.txt

Pro Glu Ala Glu Gln Ser Gly Lys Leu Asn Ile Tyr Asn Trp Ser Asp
35 40 45

Tyr Val Asp Pro Glu Thr Val Ala Ala Phe Glu Lys Glu Thr Gly Ile
50 55 60

Lys Thr Arg Ser Asp Tyr Tyr Asp Ser Asn Glu Thr Leu Glu Ala Lys
65 70 75 80

Val Leu Thr Gly Lys Ser Gly Tyr Asp Leu Thr Ala Pro Ser Ile Ala
85 90 95

Asn Val Gly Arg Gln Ile Lys Ala Gly Ala Tyr Gln Lys Ile Asp Lys
100 105 110

Ala Gln Ile Pro His Tyr Gly Asn Ile Asp Lys Asp Leu Leu Lys Met
115 120 125

Met Glu Ala Val Asp Pro Gly Asn Glu Tyr Ala Val Pro Tyr Phe Trp
130 135 140

Gly Ile Asn Thr Leu Ala Ile Asn Thr Gln Gln Val Lys Lys Ala Leu
145 150 155 160

Gly Thr Asp Lys Leu Pro Glu Asn Glu Trp Asp Leu Val Phe Lys Pro
165 170 175

Glu Tyr Thr Ala Lys Leu Lys Ser Cys Gly Ile Ser Tyr Phe Asp Ser
180 185 190

Ala Ile Glu Gln Ile Pro Leu Ala Leu His Tyr Leu Gly Lys Asp Pro
195 200 205

Asn Ser Glu Asn Pro Glu Asp Ile Lys Ala Ala Val Asp Met Met Lys
210 215 220

Ala Val Arg Gly Asp Val Lys Arg Phe Ser Ser Ser Gly Tyr Ile Asp
225 230 235 240

Asp Met Ala Ala Gly Asn Leu Cys Ala Ala Ile Gly Tyr Gly Gly Asp
245 250 255

Leu Asn Ile Ala Lys Thr Arg Ala Glu Glu Ala Ala Asn Gly Val Glu
260 265 270

Ile Lys Val Leu Thr Pro Lys Thr Gly Val Gly Val Trp Val Asp Ser
275 280 285

Phe Met Ile Pro Arg Asp Ala Gln Asn Val Ala Asn Ala His Arg Tyr
290 295 300

Ile Asp Tyr Thr Leu Arg Pro Glu Val Ala Ala Lys Asn Gly Ser Phe
305 310 315 320

Val Thr Tyr Ala Pro Ala Ser Arg Pro Ala Arg Glu Leu Met Asp Glu
325 330 335

Lys Tyr Thr Ser Asp Ala Ser Ile Phe Pro Asn Lys Glu Leu Met Glu
340 345 350

Lys Ser Phe Ile Val Ser Pro Lys Ser Ala Glu Ser Val Lys Leu Gly
355 360 365

Val Lys Leu Trp Gln Gly Leu Lys Ala Gly Lys
 370 375

<210> 65
 <211> 500
 <212> PRT
 <213> Neisseria meningitidis

<400> 65
 Met Ala Lys Val Leu Ile Val Pro Val Ser Ala Gly Leu Asp Ala Ser
 1 5 10 15

Ala Ala Ala Gln Ala Phe Ala Lys Ala Leu Asp Ala Gln Ile Phe Gln
 20 25 30

Ala Val Asp Ala Thr Ala Glu Thr Leu Leu Ala Gln Gly Lys Ser Asp
 35 40 45

Asp Trp Phe Asp Ala Leu Val Gly Lys Val Ala Ala Leu Asp Ala Ala
 50 55 60

Asn Leu Val Ile Glu Gly Ile Ala Pro Asp Ala Asp Lys Ile Tyr Leu
 65 70 75 80

Ala Gly Lys Asn Val Glu Leu Ala Leu Ser Leu Asp Ala Ala Ala Val
 85 90 95

Phe Ala Val Arg Ser Asp Asn Ala Asp Ala Asp Glu Leu Ala Asn Arg
 100 105 110

Val Asn Leu Ala Lys Gln Phe Phe Ala Ala Ala Pro Gly Val Leu Glu
 115 120 125

Gly Phe Val Val Asp Gly Ala Ala Ala Ser Val Ala Glu Ala Ala Ala
 130 135 140

Glu Lys Thr Gly Leu Thr Phe Phe Gly Ser Ser Asp Ala Leu Lys Asp
 145 150 155 160

Val Ser Val Leu Ala Gly Arg Glu Ala Lys Arg Leu Ser Pro Ala Gln
 165 170 175

Phe Arg Tyr Asn Leu Ile Asp Phe Ala Arg Gln Ala Asp Lys Arg Ile
 180 185 190

Val Leu Pro Glu Gly Ala Glu Pro Arg Thr Val Gln Ala Ala Ala Ile
 195 200 205

Cys His Glu Lys Gly Ile Ala Arg Cys Val Leu Leu Ala Lys Arg Glu
 210 215 220

Glu Val Glu Ala Val Ala Lys Glu Arg Gly Ile Ser Leu Pro Asp Ser
 225 230 235 240

Leu Glu Ile Ile Asp Pro Ala Ser Leu Val Glu Gln Tyr Val Glu Pro
 245 250 255

Met Cys Glu Leu Arg Lys Ser Lys Gly Leu Thr Pro Glu Asp Ala Arg
 260 265 270

Lys Gln Leu Gln Asp Thr Val Val Leu Gly Thr Met Met Met Ala Gln
 275 280 285

SEQLIST_PP019737.0004.txt

Asn Asp Val Asp Gly Leu Val Ser Gly Ala Val His Thr Thr Ala Asn
 290 295 300
 Thr Ile Arg Pro Ala Leu Gln Leu Ile Lys Thr Ala Pro Gly Ala Ser
 305 310 315 320
 Leu Val Ser Ser Val Phe Phe Met Leu Leu Pro Asn Gln Val Leu Val
 325 330 335
 Phe Gly Asp Cys Ala Val Asn Pro Asn Pro Thr Ala Gln Gln Leu Ala
 340 345 350
 Asp Ile Ala Ile Gln Ser Ala Asp Ser Ala Lys Ala Phe Gly Ile Asp
 355 360 365
 Pro Lys Val Ala Met Ile Ser Tyr Ser Thr Val Asn Ser Gly Ser Gly
 370 375 380
 Pro Asp Val Asp Thr Val Ile Glu Ala Thr Lys Leu Ala Arg Glu Lys
 385 390 395 400
 Arg Pro Asp Leu Ala Ile Asp Gly Pro Leu Gln Tyr Asp Ala Ala Thr
 405 410 415
 Val Pro Gly Val Gly Lys Ser Lys Ala Pro Gly Ser Pro Val Ala Gly
 420 425 430
 Gln Ala Thr Val Leu Val Phe Pro Asp Leu Asn Thr Gly Asn Cys Thr
 435 440 445
 Tyr Lys Ala Val Gln Arg Asn Ala Asn Val Leu Ser Val Gly Pro Leu
 450 455 460
 Leu Gln Gly Leu Arg Lys Pro Val Asn Asp Leu Ser Arg Gly Ala Leu
 465 470 475 480
 Val Glu Asp Ile Val Phe Thr Ile Ala Leu Thr Ala Val Gln Ala Lys
 485 490 495
 Gln Met Glu Gly
 500

<210> 66
 <211> 331
 <212> PRT
 <213> Neisseria meningitidis

<400> 66
 Met Lys Thr Ser Ile Arg Tyr Ala Leu Leu Ala Ala Ala Leu Thr Ala
 1 5 10 15
 Ala Thr Pro Ala Leu Ala Asp Ile Thr Val Tyr Asn Gly Gln His Lys
 20 25 30
 Glu Ala Ala Gln Ala Val Ala Asp Ala Phe Thr Arg Ala Thr Gly Ile
 35 40 45
 Lys Val Lys Leu Asn Ser Ala Lys Gly Asp Gln Leu Ala Gly Gln Ile
 50 55 60
 Lys Glu Glu Gly Ser Arg Ser Pro Ala Asp Val Phe Tyr Ser Glu Gln
 65 70 75 80

SEQLIST_PP019737.0004.txt

Ile Pro Ala Leu Ala Thr Leu Ser Ala Ala Asn Leu Leu Glu Pro Leu
85 90 95
Pro Ala Ser Thr Ile Asn Glu Thr Arg Gly Lys Gly Val Pro Val Ala
100 105 110
Ala Lys Lys Asp Trp Val Ala Leu Ser Gly Arg Ser Arg Val Val Val
115 120 125
Tyr Asp Thr Arg Lys Leu Ser Glu Lys Asp Leu Glu Lys Ser Val Leu
130 135 140
Asn Tyr Ala Thr Pro Lys Trp Lys Asn Arg Ile Gly Tyr Ala Pro Thr
145 150 155 160
Ser Gly Ala Phe Leu Glu Gln Val Val Ala Ile Val Lys Leu Lys Gly
165 170 175
Glu Ala Ala Ala Leu Lys Trp Leu Lys Gly Leu Lys Glu Tyr Gly Lys
180 185 190
Pro Tyr Ala Lys Asn Ser Val Ala Leu Gln Ala Val Glu Asn Gly Glu
195 200 205
Ile Asp Ala Ala Leu Ile Asn Asn Tyr Tyr Trp His Ala Phe Ala Arg
210 215 220
Glu Lys Gly Val Gln Asn Val His Thr Arg Leu Asn Phe Val Arg His
225 230 235 240
Arg Asp Pro Gly Ala Leu Val Thr Tyr Ser Gly Ala Ala Val Leu Lys
245 250 255
Ser Ser Gln Asn Lys Asp Glu Ala Lys Lys Phe Val Ala Phe Leu Ala
260 265 270
Ser Lys Glu Gly Gln Arg Ala Leu Thr Ala Val Arg Ala Glu Tyr Pro
275 280 285
Leu Asn Pro His Val Val Ser Thr Phe Asn Leu Glu Pro Ile Ala Lys
290 295 300
Leu Glu Ala Pro Gln Val Ser Ala Thr Thr Val Ser Glu Lys Glu His
305 310 315 320
Ala Thr Arg Leu Leu Glu Gln Ala Gly Met Lys
325 330

<210> 67

<211> 458

<212> PRT

<213> Neisseria meningitidis

<400> 67

Met His Asp Lys Thr Trp Ser Gly Arg Phe Asn Glu Pro Val Ser Glu
1 5 10 15

Leu Val Lys Gln Tyr Thr Ala Ser Ile Gly Phe Asp Arg Arg Leu Ala
20 25 30

Glu Trp Asp Ile Gln Gly Ser Leu Ala His Ala Gln Met Leu Lys Glu
35 40 45

SEQLIST_PP019737.0004.txt

Thr Gly Val Leu Asp Glu Gly Asp Leu Ala Asp Ile Arg Arg Gly Met
50 55 60
Ala Glu Ile Leu Glu Glu Ile Arg Ser Gly Lys Ile Glu Trp Ser Ser
65 70 75 80
Asp Leu Glu Asp Val His Met Asn Ile Glu Arg Arg Leu Thr Asp Lys
85 90 95
Ile Gly Asp Ala Gly Lys Arg Leu His Thr Gly Arg Ser Arg Asn Asp
100 105 110
Gln Val Ala Thr Asp Ile Arg Leu Trp Leu Arg Asp Gln Ile Thr Val
115 120 125
Ile Gln Ser Leu Ile Gln Ser Leu Gln Thr Ala Leu Leu Asp Leu Ala
130 135 140
Glu Gln Asn Ala Glu Thr Val Met Pro Gly Phe Thr His Leu Gln Val
145 150 155 160
Ala Gln Pro Val Ser Phe Gly His His Met Leu Ala Tyr Val Glu Met
165 170 175
Leu Gly Arg Asp Asn Glu Arg Met Ala Asp Cys Arg Cys Arg Val Asn
180 185 190
Arg Met Pro Leu Gly Ala Ala Ala Leu Ala Gly Thr Thr Tyr Pro Ile
195 200 205
Gln Arg Glu Ile Thr Ala Glu Leu Leu Gly Phe Glu Gln Ile Cys Gln
210 215 220
Asn Ser Leu Asp Ala Val Ser Asp Arg Asp Phe Ala Ile Glu Phe Thr
225 230 235 240
Ala Ala Ala Ser Leu Val Met Val His Leu Ser Arg Leu Ser Glu Glu
245 250 255
Leu Ile Leu Trp Met Ser Pro Arg Phe Gly Phe Ile Asp Ile Ala Asp
260 265 270
Arg Phe Cys Thr Gly Ser Ser Ile Met Pro Gln Lys Lys Asn Pro Asp
275 280 285
Val Pro Glu Leu Val Arg Gly Lys Ser Gly Arg Val Ile Gly His Leu
290 295 300
Ile Gly Leu Ile Thr Leu Met Lys Ser Gln Pro Leu Ala Tyr Asn Lys
305 310 315 320
Asp Asn Gln Glu Asp Lys Glu Pro Leu Phe Asp Thr Ala Asp Thr Leu
325 330 335
Ile Asp Thr Leu Arg Ile Tyr Ala Asp Met Met Arg Gly Val Thr Val
340 345 350
Lys Pro Asp Asn Met Arg Ala Ala Val Met Gln Gly Phe Ala Thr Ala
355 360 365
Thr Asp Leu Ala Asp Tyr Leu Val Lys Lys Gly Met Pro Phe Arg Asp
370 375 380

SEQLIST_PP019737.0004.txt

Ala His Glu Val Val Ala Gln Ala Val Arg His Ala Asp Gln Ala Gly
385 390 395 400
Val Asp Leu Ser Glu Leu Pro Leu Glu Val Leu Gln Gly Phe Ser Asp
405 410 415
Leu Ile Ala Asp Asp Val Tyr Gly Val Leu Thr Pro Glu Gly Ser Leu
420 425 430
Asn Ala Arg Asn His Leu Gly Gly Thr Ala Pro Glu Gln Val Arg Phe
435 440 445
Gln Val Lys Arg Trp Arg Glu Met Leu Ala
450 455

<210> 68
<211> 177
<212> PRT
<213> Neisseria meningitidis

<400> 68
Met Ala Asp Phe Asn Gln Ile Leu Thr Pro Gly Asp Val Asp Gly Gly
1 5 10 15
Ile Ile Asn Val Val Asn Glu Ile Pro Ala Gly Ser Asn His Lys Ile
20 25 30
Glu Trp Asn Arg Lys Leu Ala Ala Phe Gln Leu Asp Arg Val Glu Pro
35 40 45
Ala Ile Phe Ala Lys Pro Thr Asn Tyr Gly Phe Ile Pro Gln Thr Leu
50 55 60
Asp Glu Asp Gly Asp Glu Leu Asp Val Leu Leu Val Thr Glu Gln Pro
65 70 75 80
Leu Ala Thr Gly Val Phe Leu Glu Ala Arg Val Ile Gly Val Met Lys
85 90 95
Phe Val Asp Asp Gly Glu Val Asp Asp Lys Ile Val Cys Val Pro Ala
100 105 110
Asp Asp Arg Asn Asn Gly Asn Ala Tyr Lys Thr Leu Ser Asp Leu Pro
115 120 125
Gln Gln Leu Ile Lys Gln Ile Glu Phe His Phe Asn His Tyr Lys Asp
130 135 140
Leu Lys Lys Ala Gly Thr Thr Lys Val Glu Ser Trp Gly Asp Ala Glu
145 150 155 160
Glu Ala Lys Lys Val Ile Lys Glu Ser Ile Glu Arg Trp Asn Lys Gln
165 170 175

Ala

<210> 69
<211> 174
<212> PRT
<213> Neisseria meningitidis

<400> 69

SEQLIST_PP019737.0004.txt

Met Lys Lys Ala Leu Ala Thr Leu Ile Ala Leu Ala Leu Pro Ala Ala
1 5 10 15
Ala Leu Ala Glu Gly Ala Ser Gly Phe Tyr Val Gln Ala Asp Ala Ala
20 25 30
His Ala Lys Ala Ser Ser Ser Leu Gly Ser Ala Lys Gly Phe Ser Pro
35 40 45
Arg Ile Ser Ala Gly Tyr Arg Ile Asn Asp Leu Arg Phe Ala Val Asp
50 55 60
Tyr Thr Arg Tyr Lys Asn Tyr Lys Ala Pro Ser Thr Asp Phe Lys Leu
65 70 75 80
Tyr Ser Ile Gly Ala Ser Ala Ile Tyr Asp Phe Asp Thr Gln Ser Pro
85 90 95
Val Lys Pro Tyr Leu Gly Ala Arg Leu Ser Leu Asn Arg Ala Ser Val
100 105 110
Asp Leu Gly Gly Ser Asp Ser Phe Ser Gln Thr Ser Ile Gly Leu Gly
115 120 125
Val Leu Thr Gly Val Ser Tyr Ala Val Thr Pro Asn Val Asp Leu Asp
130 135 140
Ala Gly Tyr Arg Tyr Asn Tyr Ile Gly Lys Val Asn Thr Val Lys Asn
145 150 155 160
Val Arg Ser Gly Glu Leu Ser Ala Gly Val Arg Val Lys Phe
165 170

<210> 70
<211> 259
<212> PRT
<213> Neisseria meningitidis

<400> 70
Met Lys Glu His Lys Ala Arg Lys Arg Phe Gly Gln Asn Phe Leu Gln
1 5 10 15
Asp Thr Arg Ile Ile Ser Asp Ile Val Asn Ala Val Arg Pro Gln Ala
20 25 30
Asp Asp Val Val Ile Glu Ile Gly Pro Gly Leu Ala Ala Ile Thr Glu
35 40 45
Pro Leu Ala Lys Lys Leu Asn Arg Leu His Val Val Glu Ile Asp Arg
50 55 60
Asp Ile Val Cys Arg Leu Lys Thr Leu Pro Phe Ala Asp Lys Leu Val
65 70 75 80
Ile His Glu Gly Asp Val Leu Gln Phe Asp Phe Asn Gly Ile Ala Gly
85 90 95
Lys Lys Lys Ile Val Gly Asn Leu Pro Tyr Asn Ile Ser Thr Pro Leu
100 105 110
Leu Phe Lys Leu Ala Glu Val Ala Asp Asp Val Val Asp Met His Phe
115 120 125

SEQLIST_PP019737.0004.txt

Met Leu Gln Lys Glu Val Val Glu Arg Met Val Ala Ala Pro Lys Ser
 130 135 140
 Asn Asp Tyr Gly Arg Leu Gly Val Met Leu Gln Tyr Phe Phe Asp Met
 145 150 155 160
 Glu Met Leu Ile Asp Val Pro Pro Glu Ser Phe Asp Pro Ala Pro Lys
 165 170 175
 Val Asp Ser Ala Val Val Arg Met Ile Pro Val Lys His Arg Ile Gly
 180 185 190
 Lys Ala Asp Asp Phe Glu His Phe Ala Lys Leu Val Lys Leu Ala Phe
 195 200 205
 His Gln Arg Arg Lys Thr Ile Arg Asn Asn Leu Lys Glu Leu Ala Gly
 210 215 220
 Asp Asp Asp Leu Gln Ala Val Gly Ile Asn Pro Gln Asp Arg Ala Glu
 225 230 235 240
 His Ile Ala Pro Glu Lys Tyr Val Ala Leu Ser Asn Tyr Leu Ala Gly
 245 250 255
 Lys Val Val

<210> 71
 <211> 267
 <212> PRT
 <213> Neisseria meningitidis

<400> 71
 Met Lys Lys Ile Leu Leu Thr Val Ser Leu Gly Leu Ala Leu Ser Ala
 1 5 10 15
 Cys Ala Thr Gln Gly Thr Val Asp Lys Asp Ala Gln Ile Thr Gln Asp
 20 25 30
 Trp Ser Val Glu Lys Leu Tyr Ala Glu Ala Gln Asp Glu Leu Asn Ser
 35 40 45
 Ser Asn Tyr Thr Arg Ala Val Lys Leu Tyr Glu Ile Leu Glu Ser Arg
 50 55 60
 Phe Pro Thr Ser Arg His Ala Gln Gln Ser Gln Leu Asp Thr Ala Tyr
 65 70 75 80
 Ala Tyr Tyr Lys Asp Asp Glu Lys Asp Lys Ala Leu Ala Ala Ile Asp
 85 90 95
 Arg Phe Arg Arg Leu His Pro Gln His Pro Asn Met Asp Tyr Ala Leu
 100 105 110
 Tyr Leu Arg Gly Leu Val Leu Phe Asn Glu Asp Gln Ser Phe Leu Asn
 115 120 125
 Lys Leu Ala Ser Gln Asp Trp Ser Asp Arg Asp Pro Lys Ala Asn Arg
 130 135 140
 Glu Ala Tyr Gln Ala Phe Ala Glu Leu Val Gln Arg Phe Pro Asn Ser
 145 150 155 160

SEQLIST_PP019737.0004.txt

Lys Tyr Ala Ala Asp Ala Thr Ala Arg Met Val Lys Leu Val Asp Ala
 165 170 175
 Leu Gly Gly Asn Glu Met Ser Val Ala Arg Tyr Tyr Met Lys Arg Gly
 180 185 190
 Ala Tyr Ile Ala Ala Ala Asn Arg Ala Gln Lys Ile Ile Gly Ser Tyr
 195 200 205
 Gln Asn Thr Arg Tyr Val Glu Glu Ser Leu Ala Ile Leu Glu Leu Ala
 210 215 220
 Tyr Lys Lys Leu Asp Lys Pro Arg Leu Ala Ala Asp Thr Arg Arg Val
 225 230 235 240
 Leu Glu Thr Asn Phe Pro Lys Ser Pro Phe Leu Lys Gln Pro Trp Arg
 245 250 255
 Ser Asp Asp Met Pro Trp Trp Arg Tyr Trp His
 260 265
 <210> 72
 <211> 294
 <212> PRT
 <213> Neisseria meningitidis
 <400> 72
 Met Ser Ser Gly Asn Ile His Ile His Ser Met Thr Gly Phe Ala Asn
 1 5 10 15
 Ala Ala Ala Glu Cys Gly Ser Lys Arg Ile Asn Leu Asp Leu Arg Ala
 20 25 30
 Val Asn His Arg Phe Leu Asp Ile Gln Ile Arg Met Pro Asp Asp Leu
 35 40 45
 Arg Tyr Leu Glu Ser Gly Ile Arg Glu Lys Ile Ser Ser His Ile Ala
 50 55 60
 Arg Gly Lys Val Glu Cys Lys Ile Gln Ile Gln Asp Ala Glu Asn Gly
 65 70 75 80
 Ser Gln Ser Leu Glu Leu Asn Arg Asp Leu Val Gly Gln Leu Ala Glu
 85 90 95
 Ile Asn Lys Asp Leu Arg Lys His His Asp Leu Ala Lys Leu Gly Val
 100 105 110
 Ala Asp Ile Leu Arg Phe Pro Gly Val Leu Ala Ser Gln Arg Glu Asn
 115 120 125
 Thr Glu Glu Leu Ala Lys Ser Ile Thr Glu Leu Thr Glu Lys Ala Leu
 130 135 140
 Lys Asp Phe Thr Ala Ala Arg Lys Arg Glu Gly Lys Lys Leu Gly Glu
 145 150 155 160
 His Leu Leu Gln Arg Leu Glu Ala Met Glu Glu Ile Ile Asp Ala Leu
 165 170 175
 Ser Glu Leu Phe Pro Thr Leu Leu Glu Thr His Lys Glu Lys Ile Arg
 180 185 190

SEQLIST_PP019737.0004.txt

Ala Arg Leu Val Glu Ala Val Gly Ser Ile Asp Asn Asp Arg Leu Gln
 195 200 205
 Gln Glu Phe Ala Leu Phe Ile Gln Lys Ser Asp Ile Asp Glu Glu Phe
 210 215 220
 Ser Arg Leu Arg Thr His Ile Ala Glu Val Arg Arg Ile Val Thr Glu
 225 230 235 240
 His Lys Gly Ser Ser Gly Lys Arg Leu Asp Phe Leu Met Gln Glu Leu
 245 250 255
 Asn Arg Glu Ala Asn Thr Leu Gly Ser Lys Ser Ile Ala Ala Glu Cys
 260 265 270
 Thr Gln Ala Ser Val Glu Leu Lys Val Leu Ile Glu Gln Met Arg Glu
 275 280 285
 Gln Val Gln Asn Ile Glu
 290

<210> 73
 <211> 637
 <212> PRT
 <213> Neisseria meningitidis

<400> 73
 Met Leu Asn Ile Thr Leu Pro Asp Gly Ser Val Arg Gln Tyr Glu Ser
 1 5 10 15
 Pro Val Thr Val Ala Gln Ile Ala Ala Ser Ile Gly Ala Gly Leu Ala
 20 25 30
 Lys Ala Thr Val Ala Gly Arg Val Asn Gly Lys Leu Val Asp Ala Cys
 35 40 45
 Asp Pro Ile Val Glu Asp Ser Ala Val Gln Ile Ile Thr Pro Lys Asp
 50 55 60
 Gln Glu Gly Ile Glu Ile Ile Arg His Ser Cys Ala His Leu Val Gly
 65 70 75 80
 His Ala Val Lys Gln Leu Tyr Pro Asn Ala Lys Met Val Ile Gly Pro
 85 90 95
 Val Ile Glu Glu Gly Phe Tyr Tyr Asp Ile Ala Thr Glu Lys Pro Phe
 100 105 110
 Thr Pro Glu Asp Val Ala Ala Ile Glu Ala Arg Met Lys Glu Leu Ile
 115 120 125
 Ala Gln Asp Tyr Asp Val Val Lys Ile Met Thr Pro Arg Ala Glu Ala
 130 135 140
 Ile Lys Ile Phe Gln Glu Arg Gly Glu Glu Tyr Lys Leu Arg Leu Ile
 145 150 155 160
 Asp Asp Met Pro Glu Val Glu Ala Met Gly Met Tyr His His Gln Glu
 165 170 175
 Tyr Val Asp Met Cys Arg Gly Pro His Val Pro Asn Thr Arg Phe Leu
 180 185 190

SEQLIST_PP019737.0004.txt

Lys Asn Phe Lys Leu Thr Lys Leu Ala Gly Ala Tyr Trp Arg Gly Asp
 195 200 205
 Ser Asn Asn Glu Met Leu Gln Arg Ile Tyr Gly Thr Ala Trp Ala Thr
 210 215 220
 Lys Asp Glu Leu Lys Ala Tyr Ile Gln Arg Ile Glu Glu Ala Glu Lys
 225 230 235 240
 Arg Asp His Arg Lys Leu Gly Lys Gln Leu Asp Leu Phe His Leu Gln
 245 250 255
 Asp Glu Ala Pro Gly Met Val Phe Trp His Pro Lys Gly Trp Ala Leu
 260 265 270
 Trp Gln Val Ile Glu Gln His Met Arg Lys Glu Leu Asn Ala Ala Gly
 275 280 285
 Tyr Lys Glu Val Lys Thr Pro Gln Ile Met Asp Lys Thr Phe Trp Glu
 290 295 300
 Lys Ser Gly His Trp Asp Asn Tyr Lys Asp Asn Met Phe Val Thr Ser
 305 310 315 320
 Ser Glu Lys Arg Glu Tyr Ala Val Lys Pro Met Asn Cys Pro Gly His
 325 330 335
 Val Gln Ile Phe Asn Asn Gly Leu Arg Ser Tyr Arg Asp Leu Pro Met
 340 345 350
 Arg Leu Ala Glu Phe Gly Ser Cys His Arg Asn Glu Pro Ser Gly Ala
 355 360 365
 Leu His Gly Leu Met Arg Val Arg Gly Phe Val Gln Asp Asp Ala His
 370 375 380
 Ile Phe Cys Thr Glu Asp Gln Ile Val Ser Glu Ala Arg Ala Phe Asn
 385 390 395 400
 Glu Leu Leu Ile Arg Ile Tyr Lys Gln Phe Gly Phe His Asp Val Ser
 405 410 415
 Val Lys Leu Ser Leu Arg Pro Glu Lys Arg Ala Gly Ser Asp Asp Val
 420 425 430
 Trp Asp Lys Ala Glu Gln Gly Leu Arg Glu Ala Leu Thr Ala Cys Gly
 435 440 445
 Val Glu Trp Gly Glu Leu Pro Gly Glu Gly Ala Phe Tyr Gly Pro Lys
 450 455 460
 Ile Glu Tyr His Val Arg Asp Ala Leu Gly Arg Ser Trp Gln Cys Gly
 465 470 475 480
 Thr Leu Gln Leu Asp Phe Val Leu Pro Glu Arg Leu Asn Ala Glu Tyr
 485 490 495
 Val Thr Glu Asn Asn Asp Arg Ala Arg Pro Val Met Leu His Arg Ala
 500 505 510
 Ile Leu Gly Ser Leu Glu Arg Phe Ile Gly Ile Leu Ile Glu Asn His
 515 520 525

SEQLIST_PP019737.0004.txt

Ala Gly Ser Phe Pro Leu Trp Leu Ala Pro Val Gln Leu Val Ile Met
530 535 540

Asn Ile Thr Glu Asn Gln Ala Asp Tyr Cys Arg Glu Val Ala Ala Lys
545 550 555 560

Leu Gln Ala Ala Gly Phe Arg Ala Glu Leu Asp Leu Arg Asn Glu Lys
565 570 575

Ile Gly Tyr Lys Ile Arg Asp Asn Ser Gln Tyr Arg Phe Pro Tyr Gln
580 585 590

Ile Val Val Gly Asp Lys Glu Lys Gln Glu Asn Lys Val Ala Val Arg
595 600 605

Arg Lys Ala Glu Asp Leu Gly Ser Leu Asp Leu Asp Asp Phe Ile Ala
610 615 620

Gln Leu Gln Gln Glu Ile Thr Asp Ala Leu Val Asn His
625 630 635

<210> 74
<211> 330
<212> PRT
<213> Neisseria meningitidis

<400> 74
Met Glu Asn Val Asn Arg Ile Val Ala Glu Gly Ile Ala Ala Val Glu
1 5 10 15

Ala Ala Gln Asp Phe Asn Ala Leu Glu Gln Ile Lys Ala Arg Tyr Leu
20 25 30

Gly Lys Thr Gly Glu Leu Thr Gly Leu Leu Lys Thr Leu Gly Gln Met
35 40 45

Ser Pro Glu Glu Arg Lys Thr Ile Gly Ala His Ile Asn Glu Cys Lys
50 55 60

Asn Arg Phe Gln Thr Ala Phe Asn Ala Lys Arg Glu Ala Leu Asn Glu
65 70 75 80

Val Lys Leu Gln Ala Arg Leu Ala Ala Glu Ala Leu Asp Ile Thr Leu
85 90 95

Pro Gly Arg Ala Gln Glu Gly Gly Ser Leu His Pro Val Thr Leu Thr
100 105 110

Leu Gln Arg Val Val Glu Leu Phe His Gly Met Gly Phe Glu Val Ala
115 120 125

Asp Gly Pro Glu Ile Glu Asp Asp Phe His Asn Phe Gln Ala Leu Asn
130 135 140

Ile Pro Ala Asn His Pro Ala Arg Ala Met Gln Asp Thr Phe Tyr Val
145 150 155 160

Glu Asn Gly Asp Val Leu Arg Thr His Thr Ser Pro Ile Gln Ile Arg
165 170 175

Tyr Met Leu Asp Lys Lys Glu Pro Pro Ile Arg Ile Ile Ala Pro Gly
180 185 190

SEQLIST_PP019737.0004.txt

Arg Val Tyr Arg Val Asp Ser Asp Ala Thr His Ser Pro Met Phe His
 195 200 205
 Gln Ala Glu Gly Leu Trp Val Glu Glu Gly Val Thr Phe Ala Asp Leu
 210 215 220
 Lys Ala Val Phe Thr Asp Phe Ile Arg Arg Phe Phe Glu Arg Asp Asp
 225 230 235 240
 Leu Gln Val Arg Phe Arg Pro Ser Phe Phe Pro Phe Thr Glu Pro Ser
 245 250 255
 Ala Glu Ile Asp Ile Met Gly Glu Asn Gly Lys Trp Leu Glu Val Gly
 260 265 270
 Gly Cys Gly Met Val His Pro Asn Val Leu Lys Asn Val Asn Ile Asp
 275 280 285
 Pro Glu Lys Tyr Thr Gly Phe Ala Phe Gly Ile Gly Leu Asp Arg Phe
 290 295 300
 Ala Met Leu Arg Tyr Asn Val Asn Asp Leu Arg Leu Phe Phe Asp Asn
 305 310 315 320
 Asp Leu Asn Phe Leu Lys Gln Phe Ala Lys
 325 330

<210> 75
 <211> 787
 <212> PRT
 <213> Neisseria meningitidis

<400> 75
 Met Gln Phe Ser Tyr Ser Trp Leu Lys Thr Gln Ala Asp Thr Glu Leu
 1 5 10 15
 Ser Ser Asp Lys Leu Glu His Leu Leu Thr Met Ser Gly Leu Glu Val
 20 25 30
 Glu Glu Ala Glu Thr Ala Ala Pro Ala Phe Ala Gly Val Val Ile Ala
 35 40 45
 Glu Val Lys Ser Val Glu Lys His Pro Asp Ala Asp Arg Leu Asn Val
 50 55 60
 Thr Arg Val Asp Ala Gly Thr Gly Gly Leu Val Gln Ile Val Cys Gly
 65 70 75 80
 Ala Pro Asn Val Lys Ala Gly Ile Lys Val Pro Cys Ser Leu Pro Gly
 85 90 95
 Ala Val Leu Pro Gly Asn Phe Lys Ile Lys Pro Thr Lys Met Arg Gly
 100 105 110
 Glu Val Ser Asp Gly Met Leu Cys Ser Thr Asp Glu Leu Gly Leu Pro
 115 120 125
 Asp Asp Gly Val Asn Gly Leu His Ile Leu Pro Glu Asp Ala Pro Val
 130 135 140
 Gly Thr Asn Ile Arg Glu Tyr Leu Asp Leu Asp Asp Thr Leu Phe Thr
 145 150 155 160

SEQLIST_PP019737.0004.txt

Leu Lys Ile Thr Pro Asn Arg Ala Asp Cys Leu Ser Ile Lys Gly Ile
 165 170 175
 Ala Arg Glu Val Ser Ala Leu Thr Gly Cys Ala Phe Arg Gln Pro Glu
 180 185 190
 Ile His Thr Ala Pro Ile Thr Gly Ser Arg Lys Gln Pro Val Gln Ile
 195 200 205
 Asn Ala Pro Ala Asp Cys Gly Arg Phe Ile Ser Arg Val Ile Glu Asn
 210 215 220
 Val Asn Ala Arg Ala Thr Thr Pro Asp Trp Met Lys Gln Arg Leu Glu
 225 230 235 240
 Arg Ser Gly Ile Arg Ser Ile Ser Ala Leu Val Asp Ile Gly Asn Tyr
 245 250 255
 Val Met Leu Glu Ile Gly Gln Pro Met His Val Phe Asp Ala Asp Lys
 260 265 270
 Leu Ser Gly Ser Leu His Ile Arg Arg Ala Arg Glu Gly Glu Thr Leu
 275 280 285
 Glu Cys Leu Asn Glu Lys Thr Val Ser Leu Ser Glu Asn Thr Leu Val
 290 295 300
 Val Ala Asp Glu Lys Gly Val Leu Ser Leu Ala Gly Leu Met Gly Gly
 305 310 315 320
 Ala Ala Ser Ala Val Ser Asp Gly Thr Gln Asn Ile Val Leu Glu Ala
 325 330 335
 Ala Trp Phe Ala Pro Glu Ile Ile Ala Gly Lys Ser Arg Gln Tyr Gly
 340 345 350
 Phe Gly Ser Asp Ser Ser Phe Arg Phe Glu Arg Gly Val Asp Tyr Arg
 355 360 365
 Leu Gln Ala Asp Ala Ile Glu Arg Ala Thr Glu Leu Val Leu Gln Ile
 370 375 380
 Cys Gly Gly Ala Ala Gly Glu Met Val Glu Ala Gln Gly Glu Leu Pro
 385 390 395 400
 Glu Ala Lys Gln Val Gly Leu Arg Leu Asp Arg Leu Lys Thr Val Leu
 405 410 415
 Gly Val Asp Ile Pro Ala Glu Gln Val Glu Thr Ile Leu Gln His Leu
 420 425 430
 Gly Leu Gln Pro Glu Lys Thr Ala Glu Gly Phe Arg Val Thr Ala Pro
 435 440 445
 Ser Phe Arg Phe Asp Ile Glu Ile Glu Ala Asp Leu Ile Glu Glu Ile
 450 455 460
 Gly Arg Val Tyr Gly Tyr Glu Asn Ile Pro Asp Asp Tyr Thr Ser Gly
 465 470 475 480
 Arg Leu Lys Met Leu Glu Leu Pro Glu Thr Arg Arg Pro Arg Phe Ala
 485 490 495

SEQLIST_PP019737.0004.txt

Val Tyr Asn Glu Met Ala Ala Arg Gly Tyr Arg Glu Val Val Ser Tyr
500 505 510

Ala Phe Val Asp Glu Gln Trp Glu Gln Asp Phe Ala Ala Asn Ala Asp
515 520 525

Pro Ile Arg Leu Gln Asn Pro Leu Ala Ala Gln Tyr Ala Val Met Arg
530 535 540

Ser Thr Leu Ile Gly Gly Leu Val Glu Ile Leu Gln Asn Asn Leu Asn
545 550 555 560

Arg Lys Gln Asn Arg Val Cys Val Phe Glu Ile Ala Arg Val Phe Ser
565 570 575

Lys Gly Ser Asp Gly Gln Phe Val Gln Asn Glu Arg Ile Gly Gly Leu
580 585 590

Trp Tyr Gly Ala Val Met Pro Glu Gln Trp Gly Gly Lys Thr Arg Asn
595 600 605

Ala Asp Phe Tyr Asp Ile Lys Ala Asp Val Glu Asn Leu Leu Lys Asn
610 615 620

Lys Ala Val Glu Phe Val Lys Thr Gly His Pro Ala Leu His Pro Gly
625 630 635 640

Arg Ala Ala Asn Ile Val Ser Asp Gly Lys Val Ile Gly Phe Val Gly
645 650 655

Glu Leu His Pro Lys Trp Leu Gln Lys Tyr Asp Leu Pro Gln Ala Pro
660 665 670

Leu Val Phe Glu Ile Asp Met Ala Ala Val Leu Glu Cys Gly Lys Thr
675 680 685

Arg Tyr Arg Val Val Ser Lys Phe Gln Pro Val Arg Arg Asp Leu Ala
690 695 700

Phe Val Met Pro Glu Ala Met Ser His Asp Asp Leu Leu Leu Val Leu
705 710 715 720

Lys Gly Ala Ala Asn Lys Leu Val Gln Glu Ile Ser Val Phe Asp Val
725 730 735

Tyr Arg Gly Thr Gly Leu Pro Glu Gly Met Lys Ser Val Ala Val Lys
740 745 750

Val Ile Leu Gln Asp Met Glu Asn Thr Leu Thr Asp Glu Ala Val Glu
755 760 765

Pro Leu Ile Gly Lys Leu Ile Gly Ala Ala Thr Ala Ala Gly Ala Arg
770 775 780

Leu Arg Ser
785

<210> 76
<211> 245
<212> PRT
<213> Neisseria meningitidis
<400> 76

SEQLIST_PP019737.0004.txt

Met Gly Gly Gln Lys Thr His Phe Gly Phe Ser Thr Val Asn Glu Asp
1 5 10 15
Glu Lys Ala Gly Lys Val Ala Glu Val Phe His Ser Val Ala Lys Asn
20 25 30
Tyr Asp Ile Met Asn Asp Val Met Ser Ala Gly Leu His Arg Val Trp
35 40 45
Lys His Phe Thr Ile Asn Thr Ala His Leu Lys Lys Gly Asp Lys Val
50 55 60
Leu Asp Ile Ala Gly Gly Thr Gly Asp Leu Ser Arg Gly Trp Ala Lys
65 70 75 80
Arg Val Gly Lys Glu Gly Glu Val Trp Leu Thr Asp Ile Asn Ser Ser
85 90 95
Met Leu Thr Val Gly Arg Asp Arg Leu Leu Asn Glu Gly Met Ile Leu
100 105 110
Pro Val Ser Leu Ala Asp Ala Glu Lys Leu Pro Phe Pro Asp Asn Tyr
115 120 125
Phe Asn Leu Val Ser Val Ala Phe Gly Leu Arg Asn Met Thr His Lys
130 135 140
Asp Ala Ala Leu Lys Glu Met Tyr Arg Val Leu Lys Pro Gly Gly Thr
145 150 155 160
Leu Leu Val Leu Glu Phe Ser Lys Ile Tyr Lys Pro Leu Glu Gly Ala
165 170 175
Tyr Asp Phe Tyr Ser Phe Lys Leu Leu Pro Val Met Gly Arg Leu Ile
180 185 190
Ala Lys Asp Ala Glu Ser Tyr Gln Tyr Leu Ala Glu Ser Ile Arg Met
195 200 205
His Pro Asp Gln Glu Thr Leu Lys Gln Met Met Leu Asp Ala Gly Phe
210 215 220
Asp Ser Val Asp Tyr His Asn Met Ser Ala Gly Ile Val Ala Leu His
225 230 235 240
Lys Gly Val Lys Phe
245

<210> 77
<211> 287
<212> PRT
<213> Neisseria meningitidis

<400> 77
Met Ser Glu Ile Gly Leu Val Lys Ile Tyr Phe Gly Lys Val Arg Asp
1 5 10 15
Leu Tyr Glu Ile Asp Asp Lys Arg Met Leu Met Val Ala Ser Asp Arg
20 25 30
Leu Ser Ala Phe Asp Val Ile Leu Asp Asp Pro Ile Pro Ser Lys Gly
35 40 45

SEQLIST_PP019737.0004.txt

Glu Ile Leu Thr Gln Ile Ser Asn Phe Trp Phe Lys Lys Leu Ala His
50 55 60

Ile Met Pro Asn His Phe Thr Gly Gln Thr Val Tyr Asp Val Leu Pro
65 70 75 80

Glu Asn Glu Ala Lys Ala Leu Glu Lys Arg Ala Val Val Ala Lys Lys
85 90 95

Leu Thr Pro Val Lys Val Glu Ala Ile Val Arg Gly Tyr Leu Ala Gly
100 105 110

Ser Gly Trp Lys Asp Tyr Gln Lys Thr Gly Ser Val Cys Gly Ile Gln
115 120 125

Leu Pro Glu Gly Met Gln Glu Ala Gln Gln Leu Pro Glu Val Ile Phe
130 135 140

Thr Pro Ser Thr Lys Ala Ala Val Gly Asp His Asp Glu Asn Ile Ser
145 150 155 160

Phe Glu Glu Cys Gly Arg Ile Ile Gly Lys Glu Leu Ala Glu Glu Val
165 170 175

Arg Ala Lys Ala Val Arg Leu Tyr Thr Glu Ala Ala Glu Tyr Ala Lys
180 185 190

Ser Arg Gly Ile Ile Ile Cys Asp Thr Lys Phe Glu Phe Gly Leu Asp
195 200 205

Glu Asn Gly Thr Leu Thr Leu Met Asp Glu Val Leu Thr Pro Asp Ser
210 215 220

Ser Arg Phe Trp Pro Ala Asp Gln Tyr Lys Val Gly Thr Asn Pro Pro
225 230 235 240

Ser Phe Asp Lys Gln Phe Val Arg Asp Trp Leu Glu Gln Ser Gly Trp
245 250 255

Asn Lys Lys Ala Pro Ala Pro Lys Val Pro Ala Asp Val Ile Gln Lys
260 265 270

Thr Val Glu Lys Tyr Arg Glu Ala Leu Thr Leu Leu Thr Gln Asp
275 280 285

<210> 78
<211> 707
<212> PRT
<213> Neisseria meningitidis

<400> 78
Met Met Phe Asp Lys His Val Lys Thr Phe Gln Tyr Gly Asn Gln Thr
1 5 10 15

Val Thr Leu Glu Thr Gly Glu Ile Ala Arg Gln Ala Ala Ala Ala Val
20 25 30

Lys Val Ser Met Gly Asp Thr Val Val Leu Val Ala Val Thr Thr Asn
35 40 45

Lys Glu Val Lys Glu Gly Gln Asp Phe Phe Pro Leu Thr Val Asp Tyr
50 55 60

SEQLIST_PP019737.0004.txt

Leu Glu Arg Thr Tyr Ala Ala Gly Lys Ile Pro Gly Gly Phe Phe Lys
 65 70 75 80
 Arg Glu Gly Lys Gln Ser Glu Lys Glu Ile Leu Thr Ser Arg Leu Ile
 85 90 95
 Asp Arg Pro Ile Arg Pro Leu Phe Pro Glu Gly Phe Tyr His Asp Ile
 100 105 110
 Gln Ile Val Ala Met Val Val Ser Val Asp Pro Glu Ile Asp Ser Asp
 115 120 125
 Ile Pro Ala Met Leu Gly Ala Ser Ala Ala Leu Val Leu Ser Gly Val
 130 135 140
 Pro Phe Ala Gly Pro Ile Gly Ala Ala Arg Val Gly Tyr Val Asn Gly
 145 150 155 160
 Val Tyr Val Leu Asn Pro Thr Lys Ala Glu Leu Ala Lys Ser Gln Leu
 165 170 175
 Asp Leu Val Val Ala Gly Thr Ser Lys Ala Val Leu Met Val Glu Ser
 180 185 190
 Glu Ala Lys Ile Leu Pro Glu Asp Val Met Leu Gly Ala Val Val Tyr
 195 200 205
 Gly His Asp Gln Met Gln Val Ala Ile Asn Ala Ile Asn Glu Phe Ala
 210 215 220
 Asp Glu Val Asn Pro Glu Leu Trp Asp Trp Lys Ala Pro Glu Thr Asn
 225 230 235 240
 Glu Glu Leu Val Ala Lys Val Arg Gly Ile Ala Gly Glu Thr Ile Lys
 245 250 255
 Glu Ala Phe Lys Ile Arg Gln Lys Gln Ala Arg Ser Ala Lys Leu Asp
 260 265 270
 Glu Ala Trp Ser Ala Val Lys Glu Ala Leu Ile Thr Glu Glu Thr Asp
 275 280 285
 Thr Leu Ala Ala Asn Glu Ile Lys Gly Ile Phe Lys His Leu Glu Ala
 290 295 300
 Asp Val Val Arg Ser Gln Ile Leu Asp Gly Gln Pro Arg Ile Asp Gly
 305 310 315 320
 Arg Asp Thr Arg Thr Val Arg Pro Leu Asn Ile Gln Thr Ser Val Leu
 325 330 335
 Pro Arg Thr His Gly Ser Ala Leu Phe Thr Arg Gly Glu Thr Gln Ala
 340 345 350
 Leu Ala Val Ala Thr Leu Gly Thr Ser Arg Asp Glu Gln Ile Ile Asp
 355 360 365
 Ala Leu Ser Gly Glu Tyr Thr Asp Arg Phe Met Leu His Tyr Asn Phe
 370 375 380
 Pro Pro Tyr Ser Thr Gly Glu Val Gly Arg Met Gly Ala Pro Lys Arg
 385 390 395 400

SEQLIST_PP019737.0004.txt

Arg Glu Ile Gly His Gly Arg Leu Ala Lys Arg Ala Leu Leu Ala Val
405 410 415

Leu Pro Lys Pro Glu Asp Phe Ser Tyr Thr Met Arg Val Val Ser Glu
420 425 430

Ile Thr Glu Ser Asn Gly Ser Ser Ser Met Ala Ser Val Cys Gly Gly
435 440 445

Cys Leu Ser Leu Leu Ser Ala Gly Val Pro Leu Lys Ala His Val Ala
450 455 460

Gly Ile Ala Met Gly Leu Ile Leu Glu Gly Asn Lys Phe Ala Val Leu
465 470 475 480

Thr Asp Ile Leu Gly Asp Glu Asp His Leu Gly Asp Met Asp Phe Lys
485 490 495

Val Ala Gly Thr Thr Glu Gly Val Thr Ala Leu Gln Met Asp Ile Lys
500 505 510

Ile Gln Gly Ile Thr Lys Glu Ile Met Gln Ile Ala Leu Ala Gln Ala
515 520 525

Lys Glu Ala Arg Leu His Ile Leu Asp Gln Met Lys Ala Ala Val Ala
530 535 540

Gly Pro Gln Glu Leu Ser Ala His Ala Pro Arg Leu Phe Thr Met Lys
545 550 555 560

Ile Asn Gln Asp Lys Ile Arg Glu Val Ile Gly Lys Gly Gly Glu Thr
565 570 575

Ile Arg Ser Ile Thr Ala Glu Thr Gly Thr Glu Ile Asn Ile Ala Glu
580 585 590

Asp Gly Thr Ile Thr Ile Ala Ala Thr Thr Gln Glu Ala Gly Asp Ala
595 600 605

Ala Lys Lys Arg Ile Glu Gln Ile Thr Ala Glu Val Glu Val Gly Lys
610 615 620

Val Tyr Glu Gly Thr Val Val Lys Ile Leu Asp Asn Asn Val Gly Ala
625 630 635 640

Ile Val Ser Val Met Pro Gly Lys Asp Gly Leu Val His Ile Ser Gln
645 650 655

Ile Ala His Glu Arg Val Arg Asn Val Gly Asp Tyr Leu Gln Val Gly
660 665 670

Gln Val Val Asn Val Lys Ala Leu Glu Val Asp Asp Arg Gly Arg Val
675 680 685

Arg Leu Ser Ile Lys Ala Leu Leu Asp Ala Pro Ala Arg Glu Glu Asn
690 695 700

Ala Ala Glu
705

<210> 79
<211> 310
<212> PRT

<213> Neisseria meningitidis

<400> 79

Met Lys Ile Ala Asn Ser Ile Thr Glu Leu Ile Gly Asn Thr Pro Leu
1 5 10 15
Val Lys Leu Asn Arg Leu Thr Glu Gly Leu Lys Ala Glu Val Ala Val
20 25 30
Lys Leu Glu Phe Phe Asn Pro Gly Ser Ser Val Lys Asp Arg Ile Ala
35 40 45
Glu Ala Met Ile Glu Gly Ala Glu Lys Ala Gly Lys Ile Asn Lys Asn
50 55 60
Thr Val Ile Val Glu Ala Thr Ser Gly Asn Thr Gly Val Gly Leu Ala
65 70 75 80
Met Val Cys Ala Ala Arg Gly Tyr Lys Leu Ala Ile Thr Met Pro Glu
85 90 95
Ser Met Ser Lys Glu Arg Lys Met Leu Leu Arg Ala Phe Gly Ala Glu
100 105 110
Leu Ile Leu Thr Pro Ala Ala Glu Gly Met Ala Gly Ala Ile Ala Lys
115 120 125
Ala Lys Ser Leu Val Asp Ala His Pro Asp Thr Tyr Phe Met Pro Arg
130 135 140
Gln Phe Asp Asn Glu Ala Asn Pro Glu Val His Arg Lys Thr Thr Ala
145 150 155 160
Glu Glu Ile Trp Arg Asp Thr Asp Gly Lys Val Asp Val Phe Val Ala
165 170 175
Gly Val Gly Thr Gly Gly Thr Ile Thr Gly Val Gly Glu Val Leu Lys
180 185 190
Lys Tyr Lys Pro Glu Val Lys Val Val Ala Val Glu Pro Glu Ala Ser
195 200 205
Pro Val Leu Ser Gly Gly Glu Lys Gly Pro His Pro Ile Gln Gly Ile
210 215 220
Gly Ala Gly Phe Ile Pro Thr Val Leu Asn Thr Lys Ile Tyr Asp Ser
225 230 235 240
Ile Thr Lys Val Ser Asn Glu Ala Ala Phe Glu Thr Ala Arg Ala Ile
245 250 255
Ala Glu Lys Glu Gly Ile Leu Val Gly Ile Ser Ser Gly Ala Ala Val
260 265 270
Trp Ser Ala Leu Gln Leu Ala Lys Gln Pro Glu Asn Glu Gly Lys Leu
275 280 285
Ile Val Val Leu Leu Pro Ser Tyr Gly Glu Arg Tyr Leu Ser Thr Pro
290 295 300
Leu Phe Ala Asp Leu Ala
305 310

SEQLIST_PP019737.0004.txt

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<210>      80
<211>      424
<212>      PRT
<213>      Neisseria meningitidis

<400>      80
Met Pro Ser Glu Thr Ser Ser Pro Arg Lys Glu Asn Glu Thr Glu Val
1          5          10          15
His Ile Pro Ala Ala Pro Phe Ile Val Lys Gln Ser Gly Ser Asn Ala
          20          25          30
Leu Ala Val Cys Ala Leu Val Leu Ala Ala Leu Gly Leu Gly Thr Ser
          35          40          45
Gly Phe Leu Phe Val Gln Gly Gln Asn Val Leu Lys Asn Gln Glu Leu
          50          55          60
Ala Phe Asn Gln Lys Ile Asp Lys Ala Ala Leu Gly Glu Ser Glu Asn
65          70          75          80
Ala Ala Leu Leu Lys Asp Asn Leu Asn Arg Gln Ala Ala Ile Gln Ser
          85          90          95
Glu Leu Asp Arg Leu Asp Gly Asn Val Lys Ala Asn Gly Glu Gln Ile
          100          105          110
Leu Glu Met Gln Lys Ser Tyr Arg Glu Leu Thr Lys Gly Arg Ala Asp
          115          120          125
Trp Leu Val Asp Glu Thr Glu Thr Ile Leu Asn Leu Ala Ala Gln Gln
          130          135          140
Leu Val Leu Thr Gly Asn Ile Gln Thr Ala Val Gly Val Leu Glu His
          145          150          155          160
Ile Asp Ser Arg Leu Ser Arg Phe Asn Gln Ala Glu Leu Leu Pro Ile
          165          170          175
Lys Gln Ala Val Ser Ser Asp Leu Ala Glu Leu Lys Asn Arg Pro Tyr
          180          185          190
Val Asp Ile Ser Gly Thr Ala Leu Arg Leu Asp Arg Leu Glu Thr Ala
          195          200          205
Val Ser Gly Leu Pro Leu Met Leu Asp Gly Val Leu Lys Pro Gly Val
          210          215          220
Gln Val Lys Asn Glu Ala Ala Ser Ala Ser Trp Trp Gln Asn Val Trp
          225          230          235          240
Glu Lys Ser Leu Gly Thr Leu Lys Gly Leu Val Glu Ile Arg Arg Leu
          245          250          255
Glu Asn Asn Asp Ala Met Leu Ile Ser Pro Glu Gln Ala Tyr Phe Val
          260          265          270
Arg Glu Asn Leu Arg Leu Arg Leu Leu Asp Ala Arg Thr Ala Leu Met
          275          280          285
Gln Arg Asn Ser Glu Val Tyr Gln Gly Asp Leu Asn Asn Ala Glu Ala
          290          295          300

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SEQLIST_PP019737.0004.txt

Ala Val Arg Gln Tyr Phe Asp Ala Lys Ser Pro Ala Thr Gln Ser Trp
 305 310 315 320
 Leu Lys Glu Leu Ala Glu Leu Lys Ala Leu Asp Val Arg Met Thr Ala
 325 330 335
 Asp Asp Gly Leu Lys Asn Ser Leu Asn Ala Val Arg Ala Tyr Arg Asp
 340 345 350
 Gly Thr Arg Met Thr Ala Ala Glu Asn Gln Glu Ala Glu Gln Ala Ala
 355 360 365
 Ser Glu Pro Ala Asn Glu Lys Thr Ala Ser Glu Pro Ala Ala Ala Ser
 370 375 380
 Asp Val Lys Thr Ile Glu Ala Pro Ser Leu Pro Ser Glu Arg Lys Pro
 385 390 395 400
 Glu Gln Pro Ala Lys Lys Gln Thr Val Pro Glu Lys Ala Gly Arg Ser
 405 410 415
 Pro Ser Ala Lys Gly Glu Arg Ala
 420

<210> 81
 <211> 169
 <212> PRT
 <213> Neisseria meningitidis

<400> 81
 Met Ile Ile Leu His Thr Asn Lys Gly Asp Ile Lys Ile Glu Leu Asp
 1 5 10 15
 Phe Asp Lys Ala Pro Val Thr Ala Lys Asn Phe Glu Gln Tyr Val Lys
 20 25 30
 Asp Gly Phe Tyr Asp Gly Val Ile Phe His Arg Val Ile Lys Gly Phe
 35 40 45
 Met Ile Gln Gly Gly Gly Met Asp Glu Asn Met Asn Glu Lys Glu Thr
 50 55 60
 Arg Asp Pro Ile Gln Asn Glu Ala Ser Asn Gly Leu Pro Asn Asp Lys
 65 70 75 80
 Tyr Thr Ile Ala Met Ala Arg Thr Ser Asp Pro His Ser Ala Ser Ala
 85 90 95
 Gln Phe Phe Ile Asn Thr Ala Asp Asn Ala Phe Leu Asn Phe Arg Ser
 100 105 110
 Lys Glu Leu Tyr Gly Lys Thr Val Val Gln Asp Trp Gly Tyr Ala Val
 115 120 125
 Phe Gly Lys Val Val Asp Gly Phe Asp Val Val Asp Ala Ile Glu Gly
 130 135 140
 Val Ser Thr Lys Arg His Gly Tyr His Asp Asp Val Pro Ser Glu Pro
 145 150 155 160
 Val Val Ile Ile Lys Ala Glu Ala Val
 165

SEQLIST_PP019737.0004.txt

<210> 82
 <211> 221
 <212> PRT
 <213> Neisseria meningitidis

<400> 82
 Met Thr Val Leu Ser Lys Glu Gln Val Leu Ser Ala Phe Lys Asn Arg
 1 5 10 15
 Lys Ser Cys Arg His Tyr Asp Ala Ala Arg Lys Ile Ser Ala Glu Asp
 20 25 30
 Phe Gln Phe Ile Leu Glu Leu Gly Arg Leu Ser Pro Ser Ser Val Gly
 35 40 45
 Ser Glu Pro Trp Gln Phe Ile Val Val Gln Asn Pro Glu Ile Arg Gln
 50 55 60
 Ala Ile Lys Pro Phe Ser Trp Gly Met Ala Asp Ala Leu Asp Thr Ala
 65 70 75 80
 Ser His Leu Val Val Phe Leu Ala Lys Lys Asn Ala Arg Ser Asp Ser
 85 90 95
 Pro Phe Met Leu Glu Ser Leu Lys Arg Arg Gly Val Thr Glu Pro Asp
 100 105 110
 Ala Val Ala Lys Ser Leu Ala Arg Tyr Gln Ala Phe Gln Ala Asp Asp
 115 120 125
 Ile Lys Ile Leu Asp Asp Ser Arg Ala Leu Phe Asp Trp Cys Cys Arg
 130 135 140
 Gln Thr Tyr Ile Ala Leu Ala Asn Met Met Thr Gly Ala Ala Met Ala
 145 150 155 160
 Gly Ile Asp Ser Cys Pro Val Glu Gly Phe Asn Tyr Ala Glu Met Glu
 165 170 175
 Arg Ile Leu Ser Gly Gln Phe Gly Leu Phe Asp Ala Ala Glu Trp Gly
 180 185 190
 Val Ser Val Ala Ala Thr Phe Gly Tyr Arg Val Gln Glu Ile Ala Thr
 195 200 205
 Lys Ala Arg Arg Pro Leu Glu Glu Thr Val Ile Trp Ala
 210 215 220

<210> 83
 <211> 383
 <212> PRT
 <213> Neisseria meningitidis

<400> 83
 Met Gln Thr Trp Gln Leu Pro Glu His Ile Ala Asp Val Leu Pro Thr
 1 5 10 15
 Asn Ala Arg Gln Leu Glu Ser Ala Arg Glu Gln Leu Leu Ala Leu Phe
 20 25 30
 Arg Val His Gly Tyr Glu Leu Val Gln Pro Pro Leu Met Glu Tyr Ala
 35 40 45

SEQLIST_PP019737.0004.txt

His Ser Leu Leu Thr His Ile Asp Ala Gly Leu Ser Leu Lys Thr Ile
 50 55 60
 Leu Val Thr Asp Arg Leu Ser Gly Arg Gln Leu Gly Ile Arg Ala Asp
 65 70 75 80
 Ile Thr Pro Gln Val Ala Arg Ile Asp Ala His Leu Leu Ser Ala Asn
 85 90 95
 Gln Gly Ile Asn Arg Leu Cys Tyr Ala Gly Pro Val Leu His Ala Gln
 100 105 110
 Pro Asp Gly Leu Leu Asn Met Arg Glu Pro Leu Gln Ala Gly Ala Glu
 115 120 125
 Met Tyr Gly Phe Ala Asp Ile Arg Gly Asp Ile Glu Leu Ile Asp Leu
 130 135 140
 Met Leu Lys Ser Met Lys Ile Ala Asp Met Gly Lys Val Leu Leu Ser
 145 150 155 160
 Leu Gly His Ile Gly Ile Phe Arg Ala Leu Ser Asp Ala Ala His Leu
 165 170 175
 Asp Ala Gly Gln Ser Ala Thr Leu Leu Ala Leu Met Gln Asp Lys Asp
 180 185 190
 Thr Gly Ala Val Glu Ala Gln Val Lys Ala Trp Lys Leu Asp Gly Met
 195 200 205
 Trp Ala Lys Ala Phe Ser Leu Leu Pro Arg Leu Tyr Gly Gly Arg Glu
 210 215 220
 Val Leu Ser Asp Ala Arg Gly Arg Leu Pro Asp Leu Ser Ala Val Gly
 225 230 235 240
 Gly Ala Leu Gly Glu Leu Gln Ala Val Cys Asp Ala Phe Pro Asp Cys
 245 250 255
 Glu Ile His Ile Asp Leu Ser Glu Leu Arg Val Asp Asn Tyr His Thr
 260 265 270
 Gly Leu Leu Tyr Ala Ala Tyr Ala Ala Asp Phe His Asp Ala Val Ala
 275 280 285
 Arg Gly Gly Arg Tyr Asp Gly Leu Gly Gly Tyr Phe Gly Arg Ala Arg
 290 295 300
 Pro Ala Thr Gly Phe Ser Phe Asp Leu Arg Ser Phe Ile Gly Arg Leu
 305 310 315 320
 Pro Ala Ile Glu Arg Gln Pro Ala Val Leu Val Asp Ala Glu Asp Ala
 325 330 335
 Glu Ala Ala His Glu Ala Val Glu Ala Leu Arg Glu Gln Gly Gln Cys
 340 345 350
 Val Val Ile Asp Tyr Gly Ile Gly His Asn Val Ser Glu Glu Leu Ala
 355 360 365
 Gly Arg Leu Lys Lys Thr Asp Gly Val Trp Gln Val Val Lys Arg
 370 375 380

SEQLIST_PP019737.0004.txt

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<210>      84
<211>      434
<212>      PRT
<213>      Neisseria meningitidis

<400>      84
Met Ala Met Ala Lys Asn Val Val Val Ile Gly Ala Gln Trp Gly Asp
1          5          10          15

Glu Gly Lys Gly Lys Ile Val Asp Trp Leu Ala Glu Glu Ala Gly Gly
          20          25          30

Val Val Arg Phe Gln Gly Gly His Asn Ala Gly His Thr Leu Val Val
          35          40          45

Gly Gly Lys Lys Thr Ile Leu Arg Leu Ile Pro Ser Gly Ile Leu His
          50          55          60

Glu Ser Leu Asp Cys Phe Ile Gly Ser Gly Val Val Val Ser Pro Glu
65          70          75          80

Ala Leu Leu Gly Glu Ile Asp Glu Leu Asn Ala Ala Gly Val Lys Asn
          85          90          95

Val Glu Gly Arg Leu Lys Ile Ala Pro Thr Cys Pro Leu Ile Leu Pro
          100          105          110

Tyr His Ile Ala Leu Asp Gln Ala Arg Glu Ala Ser Arg Gly Lys Gly
          115          120          125

Lys Ile Gly Thr Thr Gly Arg Gly Ile Gly Pro Ala Tyr Glu Asp Lys
          130          135          140

Val Ala Arg Arg Ala Ile Arg Ala Ala Asp Leu Leu His Pro Glu Lys
145          150          155          160

Leu Arg Glu Lys Leu Asp Ala Val Leu Ala Tyr Tyr Asn Val Gln Leu
          165          170          175

Gln His Leu His Asn Ala Glu Pro Val Lys Ala Glu Asp Val Met Ala
          180          185          190

Val Ile Glu Lys Val Ala Pro Arg Ile Ala Pro Met Ile Thr Asp Val
          195          200          205

Ser Arg Val Leu Asn Glu Lys Asn Lys Asn Gly Glu Lys Leu Leu Phe
210          215          220

Glu Gly Ala Gln Gly Ala Leu Leu Asp Ile Asp Tyr Gly Thr Tyr Pro
225          230          235          240

Phe Val Thr Ser Ser Asn Cys Leu Ala Gly Ala Ala Ser Ala Gly Ala
          245          250          255

Gly Val Gly Pro Gln Met Leu Asp Tyr Val Leu Gly Ile Val Lys Ala
          260          265          270

Tyr Thr Thr Arg Val Gly Ser Gly Pro Phe Pro Thr Glu Leu Phe Asp
          275          280          285

Glu Val Gly Val Gly Leu Ala Glu Arg Gly His Glu Phe Gly Ser Val
290          295          300

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SEQLIST_PP019737.0004.txt

Thr Gly Arg Ala Arg Arg Cys Gly Trp Phe Asp Ala Ala Ala Leu Lys
 305 310 315 320
 Arg Ser Ile Gln Ile Asn Gly Ile Ser Gly Met Cys Ile Thr Lys Leu
 325 330 335
 Asp Val Met Asp Gly Val Glu Thr Ile Asn Ile Cys Val Gly Tyr Glu
 340 345 350
 Leu Pro Asp Gly Gly Lys Thr Asp Ile Leu Pro Cys Gly Ser Asp Ala
 355 360 365
 Val Glu Thr Cys Lys Pro Ile Tyr Glu Thr Met Pro Gly Trp Arg Glu
 370 375 380
 Ser Thr Phe Gly Val Lys Asp Tyr Gly Ala Leu Pro Glu Asn Ala Lys
 385 390 395 400
 Ala Tyr Leu Lys Arg Ile Glu Glu Val Cys Gly Ala Pro Val Ala Ile
 405 410 415
 Val Ser Thr Gly Pro Asp Arg Glu Glu Thr Ile Val Leu His His Pro
 420 425 430
 Phe Ala

<210> 85
 <211> 334
 <212> PRT
 <213> Neisseria meningitidis

<400> 85
 Met Thr Ile Ile Val Thr Gly Ala Ala Gly Phe Ile Gly Ser Asn Ile
 1 5 10 15
 Val Lys Ala Leu Asn Gln Arg Gly Ile Thr Asp Ile Val Ala Val Asp
 20 25 30
 Asn Leu Ser Lys Gly Glu Lys Phe Lys Asn Leu Ala Glu Cys Glu Ile
 35 40 45
 Ala His Tyr Leu Asp Lys His Glu Phe Ile Arg Gln Val Arg Glu His
 50 55 60
 Ile Leu Pro Tyr Gln Asn Ile Glu Ala Val Phe His Gln Gly Ala Cys
 65 70 75 80
 Ser Asp Thr Met Asn His Asp Gly Leu Tyr Met Met Asp Asn Asn Tyr
 85 90 95
 Gln Tyr Thr Leu Asp Leu Leu Asp Trp Cys Gln Asp Glu Arg Ile Pro
 100 105 110
 Phe Leu Tyr Ala Ser Ser Ala Ala Val Tyr Gly Lys Gly Glu Ile Phe
 115 120 125
 Arg Glu Glu Arg Glu Leu Glu Lys Pro Leu Asn Val Tyr Gly Tyr Ser
 130 135 140
 Lys Phe Leu Phe Asp Gln Val Leu Arg Arg Arg Met Lys Glu Gly Leu
 145 150 155 160

SEQLIST_PP019737.0004.txt

Thr Ala Gln Val Val Gly Phe Arg Tyr Phe Asn Val Tyr Gly Gln His
165 170 175
Glu Gln His Lys Gly Arg Met Ala Ser Val Ala Phe His His Phe His
180 185 190
Gln Tyr Arg Glu His Gly Tyr Val Asn Leu Phe Gly Ser Asn Asp Gly
195 200 205
Tyr Gly Asn Gly Glu Gln Thr Arg Asp Phe Val Ser Val Glu Asp Val
210 215 220
Ala Lys Val Asn Leu Tyr Phe Phe Asp His Pro Glu Leu Ser Gly Ile
225 230 235 240
Tyr Asn Leu Gly Thr Gly Arg Ser Gln Gln Phe Asn Glu Leu Ala Ala
245 250 255
Ala Thr Val Asn Ala Cys Arg Ala Ala Glu Gly Lys Pro Glu Met Ser
260 265 270
Leu Lys Glu Leu Val Glu Glu Glu Leu Ile Arg Tyr Ile Pro Phe Pro
275 280 285
Asp Ala Leu Lys Gly Lys Tyr Gln Ser Phe Thr Gln Ala Asp Ile Thr
290 295 300
Lys Leu Arg Glu Ala Gly Tyr Lys Glu Glu Phe Phe Asp Val Lys Ser
305 310 315 320
Gly Val Asp Arg Tyr Val Lys Trp Met Leu Glu Asn Leu Ala
325 330

<210> 86
<211> 431
<212> PRT
<213> Neisseria meningitidis

<400> 86
Met Ala Gln Lys Ile Gln Ser Val Lys Gly Met Asn Asp Leu Leu Pro
1 5 10 15
Val Lys Gln Lys Asp Phe Lys Leu Thr Ala Ala Phe Trp Gln Ala Phe
20 25 30
Glu Asp Thr Val Gly Arg Trp Thr Arg Ala Tyr Gly Tyr Gln Gln Ile
35 40 45
Arg Thr Pro Ile Val Glu Gln Thr Gly Leu Phe Val Arg Ser Ile Gly
50 55 60
Glu Glu Thr Asp Val Val Gly Lys Glu Met Tyr Thr Phe Ser Asp Ser
65 70 75 80
Asn Asp Ser Leu Ser Leu Ser Leu Arg Pro Glu Gly Thr Ala Ser Cys
85 90 95
Leu Arg Ala Val Val Glu His Asn Leu Leu Tyr Asn Ser Pro Gln Lys
100 105 110
Leu Trp Tyr Met Gly Pro Met Phe Arg Arg Glu Arg Pro Gln Lys Gly
115 120 125

SEQLIST_PP019737.0004.txt

Arg Tyr Arg Gln Phe His Gln Val Gly Ile Glu Ala Leu Gly Phe Glu
130 135 140

Gly Pro Asp Ile Asp Ala Glu Ile Ile Ala Met Ser Ala Asp Leu Trp
145 150 155 160

Glu Lys Leu Gly Ile Arg Glu Tyr Leu Thr Leu Glu Ile Asn Ser Leu
165 170 175

Gly Asn Arg Glu Glu Arg Ala Ala His Arg Ala Ala Leu Val Glu Tyr
180 185 190

Leu Thr Arg Tyr Glu Asp Lys Leu Asp Glu Asp Ser Lys Arg Arg Leu
195 200 205

Lys Thr Asn Pro Leu Arg Val Leu Asp Thr Lys Asn Pro Asp Leu Gln
210 215 220

Glu Ile Cys Asn Ala Ala Pro Arg Leu Val Asp Tyr Leu Gly Glu Asp
225 230 235 240

Ser Gln Asn His Tyr Val Arg Phe Lys Ala Met Leu Asp Gly Leu Gly
245 250 255

Ile Gln Tyr Ile Glu Asn Pro Arg Leu Val Arg Gly Leu Asp Tyr Tyr
260 265 270

Asn Gln Thr Val Phe Glu Trp Thr Thr Asp Lys Leu Gly Ala Gln Ala
275 280 285

Thr Val Cys Gly Gly Gly Arg Tyr Asp Gly Leu Ile Glu Glu Leu Gly
290 295 300

Gly Lys Pro Ala Pro Ser Ile Gly Phe Ala Met Gly Ile Glu Arg Leu
305 310 315 320

Leu Leu Leu Val Ser Glu Tyr Gly Ser Leu Glu Val Asn Ala Ala Pro
325 330 335

Asp Val Tyr Ala Met His Gln Gly Glu Gly Ala Asp Leu Gln Val Met
340 345 350

Lys Tyr Ala Gln Ala Leu Arg Ala Gln Gly Phe Asn Val Met Gln His
355 360 365

Ser Gly Tyr Gln Ser Leu Lys Ala Gln Met Lys Lys Ala Asp Asn Ser
370 375 380

Gly Ala Arg Phe Ala Leu Ile Val Ala Gln Asp Glu Leu Ala Asn Gly
385 390 395 400

Thr Val Thr Leu Lys Asp Met Asn Gly Ala His Gly Gln Gln Thr Val
405 410 415

Ala Ala Glu Asp Leu Thr Pro Thr Leu Gln Gln Trp Lys Asn Ala
420 425 430

<210> 87
<211> 327
<212> PRT
<213> Neisseria meningitidis

<400> 87

SEQLIST_PP019737.0004.txt

Met Ala Ala Tyr Asp Ser Leu Met Val Phe Thr Gly Asn Ala Asn Pro
1 5 10 15
Glu Leu Ala Gln Arg Val Val Arg His Leu Asp Ile Ser Leu Gly Asn
20 25 30
Ala Ser Val Ser Lys Phe Ser Asp Gly Glu Val Ala Val Glu Leu Leu
35 40 45
Glu Asn Val Arg Gly Arg Asp Val Phe Ile Leu Gln Pro Thr Cys Ala
50 55 60
Pro Thr Asn Asp Asn Leu Met Glu Ile Leu Thr Met Ala Asp Ala Leu
65 70 75 80
Lys Arg Ala Ser Ala Gly Arg Ile Thr Thr Ala Ile Pro Tyr Phe Gly
85 90 95
Tyr Ala Arg Gln Asp Arg Arg Pro Arg Ser Val Arg Val Pro Ile Ser
100 105 110
Ala Lys Leu Val Ala Asn Met Leu Tyr Ser Ala Gly Ile Asp Arg Val
115 120 125
Leu Thr Val Asp Leu His Ala Asp Gln Ile Gln Gly Phe Phe Asp Ile
130 135 140
Pro Val Asp Asn Ile Tyr Ala Thr Pro Ile Leu Leu Asn Asp Ile Lys
145 150 155 160
Gln Gln Arg Ile Glu Asn Leu Thr Val Val Ser Pro Asp Ile Gly Gly
165 170 175
Val Val Arg Ala Arg Ala Val Ala Lys Ser Leu Asn Ala Asp Leu Ala
180 185 190
Ile Ile Asp Lys Arg Arg Pro Lys Ala Asn Val Ala Glu Val Met Asn
195 200 205
Ile Ile Gly Asp Ile Gln Gly Arg Thr Cys Leu Ile Val Asp Asp Met
210 215 220
Ile Asp Thr Ala Asn Thr Leu Cys Lys Ala Ala Val Ala Leu Lys Glu
225 230 235 240
Arg Gly Ala Glu Arg Val Leu Ala Tyr Ala Ser His Ala Val Phe Ser
245 250 255
Gly Glu Ala Val Ser Arg Ile Ala Ser Ser Glu Ile Asp Gln Val Val
260 265 270
Val Thr Asp Thr Ile Pro Leu Ser Glu Ala Ala Lys Asn Cys Asp Arg
275 280 285
Ile Arg Gln Val Thr Ile Ala Gly Leu Leu Ala Glu Thr Val Arg Arg
290 295 300
Ile Ser Asn Glu Glu Ser Val Ser Tyr Leu Phe Asn Glu Glu Val Met
305 310 315 320
Thr Gly Ser Met Leu Leu Pro
325

SEQLIST_PP019737.0004.txt

<210> 88
 <211> 190
 <212> PRT
 <213> Neisseria meningitidis

<400> 88
 Met Thr Tyr Glu Ile Gln Ala Ser Val Arg Glu Ala Gln Gly Thr Gly
 1 5 10 15
 Ala Ser Arg Arg Leu Arg Arg Glu Gly Gln Ile Pro Gly Ile Leu Tyr
 20 25 30
 Gly Glu Gly Gln Glu Pro Val Ala Ile Ala Val Asp His Lys Thr Val
 35 40 45
 Phe Tyr Ala Leu Glu Lys Glu Ser Phe His Thr Ala Leu Ile Lys Leu
 50 55 60
 Ser Leu Asn Gly Glu Thr Lys Asp Val Ile Val Arg Asp Phe Gln Met
 65 70 75 80
 His Pro Phe Arg Arg Glu Val Gln His Ile Asp Phe Gln Ala Val Lys
 85 90 95
 Ala Asp Gln Leu Val Arg Ile Arg Val Pro Leu His Ile Val Asn Ala
 100 105 110
 Glu Asn Ser Gln Ala Val Lys Leu Gln Gly Gly Arg Val Ser Leu Leu
 115 120 125
 Asn Thr Ser Val Glu Val Val Ala Leu Pro Ala Asn Ile Pro Ala Phe
 130 135 140
 Leu Asp Leu Asp Cys Ala Glu Val Val Ala Gly Asp Ile Leu His Leu
 145 150 155 160
 Ser Asp Ile Lys Leu Pro Glu Gly Val Glu Ser Val Ser Leu Lys Arg
 165 170 175
 Asn Glu Asn Leu Ala Val Ala Thr Val Thr Gly Lys Lys Arg
 180 185 190

<210> 89
 <211> 508
 <212> PRT
 <213> Neisseria meningitidis

<400> 89
 Met Asn Thr Pro Leu Pro Tyr Ser Asp Tyr Leu Ile Arg Ile Leu Thr
 1 5 10 15
 Ala Ser Val Tyr Asp Val Ala Val Glu Thr Pro Leu Glu Pro Ala Arg
 20 25 30
 Ser Leu Ser Val Arg Leu Lys Asn Asn Ile Leu Leu Lys Arg Glu Asp
 35 40 45
 Leu Gln Pro Val Phe Ser Phe Lys Ile Arg Gly Ala Tyr Asn Lys Met
 50 55 60
 Ser Lys Leu Pro Lys Asp Ala Leu Ala Cys Gly Val Ile Ala Ala Ser
 65 70 75 80

SEQLIST_PP019737.0004.txt

Ala Gly Asn His Ala Gln Gly Val Ala Leu Ser Ala Gln Arg Leu Gly
85 90 95

Cys Arg Ala Val Ile Val Met Pro Glu Thr Thr Pro Lys Ile Lys Val
100 105 110

Asp Ala Val Lys Ser His Gly Gly Glu Val Val Leu Arg Gly Val Ser
115 120 125

Tyr Asn Asp Ala Tyr Asp Tyr Ala Met Glu Leu Ala Glu Lys Glu Gly
130 135 140

Leu Thr Tyr Ile Ala Pro Phe Asp Asp Pro Asp Val Ile Ala Gly Gln
145 150 155 160

Gly Thr Val Gly Met Glu Ile Val Ser Gln His Pro Asp Pro Ile Arg
165 170 175

Ala Val Phe Val Pro Ile Gly Gly Gly Gly Leu Ala Ala Gly Val Ala
180 185 190

Ala Phe Ile Lys Gln Val Arg Pro Glu Ile Lys Val Ile Gly Val Gln
195 200 205

Thr Asn Asp Ser Cys Cys Met Lys Gln Ser Val Glu Ala Gly Glu Ile
210 215 220

Val His Leu Lys Asp Val Gly Leu Phe Ser Asp Gly Thr Ala Val Lys
225 230 235 240

Val Val Gly Asn Glu Thr Phe Arg Leu Cys Lys Glu Leu Leu Asp Glu
245 250 255

Ile Ile Thr Val Asp Thr Asp Ala Val Cys Gly Ala Val Lys Asp Ile
260 265 270

Phe Asp Asp Thr Arg Ser Ile Thr Glu Pro Ala Gly Ala Leu Ala Leu
275 280 285

Ala Gly Leu Lys Ala Tyr Ile Ala Arg Glu Gly Ala Glu Asn Gln Thr
290 295 300

Leu Ile Ala Val Thr Ser Gly Ala Asn Met Asn Phe His Arg Leu Arg
305 310 315 320

His Val Ser Glu Arg Ser Glu Leu Gly Glu Gly Asn Glu Gly Ile Phe
325 330 335

Ala Val Thr Ile Pro Glu Glu Arg Gly Ser Phe Leu Lys Phe Val Asn
340 345 350

Ile Leu Gly Asn Arg Asn Ile Thr Glu Phe Asn Tyr Arg Tyr Gly Asp
355 360 365

Asp Glu Lys Ala His Ile Phe Val Gly Leu Gln Ala Ala Gly Pro Gln
370 375 380

Asp Leu Ala Val Ile Gly Ser Arg Leu Asp Glu Ala Gly Leu Pro Asn
385 390 395 400

Val Asp Leu Thr Asn Asn Glu Ile Ala Lys Ile His Ile Arg Tyr Met
405 410 415

SEQLIST_PP019737.0004.txt

Val Gly Gly Arg Thr Asp Lys Val Glu Asn Glu Arg Leu Val Ser Phe
420 425 430

Glu Phe Pro Glu Arg Pro Gly Ala Leu Ala Arg Phe Leu Asn His Met
435 440 445

Gln Gly Gly Trp Asn Ile Thr Leu Phe His Tyr Arg Asn His Gly Ala
450 455 460

Asp Tyr Gly Arg Ile Leu Val Gly Ile Asp Val Pro Pro His Asp Ala
465 470 475 480

Ala Ala Phe Asp Gly Phe Leu Glu Ser Leu Gly Tyr Ser Tyr His Glu
485 490 495

Glu Thr Gln Asn Ala Ala Tyr Lys Leu Phe Leu Ala
500 505

<210> 90

<211> 195

<212> PRT

<213> Neisseria meningitidis

<400> 90

Met Glu His Lys Leu Pro Gln Leu Pro Tyr Glu Leu Asp Ala Leu Ser
1 5 10 15

Pro His Leu Ser Lys Glu Thr Leu Glu Phe His Tyr Gly Lys His His
20 25 30

Gln Thr Tyr Ile Thr Asn Leu Asn Asn Gln Ile Lys Gly Thr Glu Phe
35 40 45

Glu Asn Leu Pro Leu Glu Glu Ile Val Lys Lys Ser Ser Gly Gly Val
50 55 60

Phe Asn Asn Ala Ala Gln Thr Trp Asn His Thr Phe Tyr Trp Leu Gly
65 70 75 80

Phe Thr Ser Lys Gly Gln Gly Lys Pro Ala Gly Glu Leu Ala Ala Ala
85 90 95

Ile Asp Ala Lys Trp Gly Ser Phe Glu Lys Phe Gln Glu Ala Phe Asn
100 105 110

Ala Cys Ala Ala Gly Thr Phe Gly Ser Gly Trp Ala Trp Leu Val Lys
115 120 125

Thr Pro Ala Gly Gly Leu Asp Leu Val Ser Thr Ser Asn Ala Ala Thr
130 135 140

Pro Leu Thr Thr Glu Asn Thr Pro Leu Leu Thr Cys Asp Val Trp Glu
145 150 155 160

His Ala Tyr Tyr Ile Asp Tyr Arg Asn Ser Arg Pro Asn Tyr Leu Lys
165 170 175

Gly Phe Trp Glu Ile Val Asn Trp Asp Glu Val Ala Lys Arg Phe Ala
180 185 190

Ala Leu Ser
195

SEQLIST_PP019737.0004.txt

<210> 91
 <211> 468
 <212> PRT
 <213> Neisseria meningitidis

<400> 91
 Met Asn Asp Tyr Ala Ala Met Pro Ser Glu Asp Arg Glu Val Gly Ala
 1 5 10 15
 Leu Ser Leu Pro Pro His Ser Met Glu Ala Glu Gln Ser Val Leu Gly
 20 25 30
 Gly Leu Met Leu Glu Asn Pro Ala Trp Asp Arg Ile Ala Asp Val Val
 35 40 45
 Ser Gly Glu Asp Phe Tyr Arg His Glu His Arg Leu Ile Phe Arg Ser
 50 55 60
 Ile Ala Lys Leu Ile Asn Glu Ser Arg Pro Ala Asp Val Ile Thr Val
 65 70 75 80
 Gln Glu Asp Leu Gln Arg Asn Glu Glu Leu Glu Ala Ala Gly Gly Phe
 85 90 95
 Glu Tyr Leu Ile Thr Leu Ala Gln Asn Thr Pro Ser Ala Ala Asn Ile
 100 105 110
 Arg Arg Tyr Ala Glu Ile Val Arg Glu Arg Ser Ile Met Arg Gln Leu
 115 120 125
 Ala Glu Val Gly Thr Glu Ile Ala Arg Ser Ala Tyr Asn Pro Gln Gly
 130 135 140
 Arg Asp Ala Gly Gln Leu Leu Asp Glu Ala Glu Asn Lys Val Phe Gln
 145 150 155 160
 Ile Ala Glu Ser Thr Ala Lys Ser Lys Gln Gly Phe Leu Glu Met Pro
 165 170 175
 Asp Leu Leu Lys Glu Val Val Gln Arg Ile Asp Met Leu Tyr Ser Arg
 180 185 190
 Asp Asn Pro Asp Glu Val Thr Gly Val Pro Thr Gly Phe Ile Asp Leu
 195 200 205
 Asp Lys Lys Thr Ser Gly Leu Gln Pro Gly Asp Leu Ile Ile Val Ala
 210 215 220
 Gly Arg Pro Ser Met Gly Lys Thr Ala Phe Ser Ile Asn Ile Ala Glu
 225 230 235 240
 His Val Ala Val Glu Gly Arg Leu Pro Val Ala Val Phe Ser Met Glu
 245 250 255
 Met Gly Gly Ala Gln Leu Val Met Arg Met Leu Gly Ser Val Gly Arg
 260 265 270
 Leu Asp Gln Ser Val Leu Lys Thr Gly Arg Leu Glu Asp Glu His Trp
 275 280 285
 Gly Arg Leu Asn Glu Ala Val Val Lys Leu Ser Asp Ala Pro Val Tyr
 290 295 300

SEQLIST_PP019737.0004.txt

Ile Asp Glu Thr Pro Gly Leu Thr Ala Leu Glu Leu Arg Ala Arg Ala
 305 310 315 320
 Arg Arg Leu Ala Arg Gln Phe Asn Asn Lys Leu Gly Leu Ile Val Ile
 325 330 335
 Asp Tyr Leu Gln Leu Met Ala Gly Ser Gly Arg Ser Asp Asn Arg Ala
 340 345 350
 Ser Glu Leu Gly Glu Ile Ser Arg Ser Leu Lys Ala Leu Ala Lys Glu
 355 360 365
 Leu Gln Val Pro Ile Ile Ala Leu Ser Gln Leu Ser Arg Thr Val Glu
 370 375 380
 Ser Arg Thr Asp Lys Arg Pro Met Met Ser Asp Leu Arg Glu Ser Gly
 385 390 395 400
 Ala Ile Glu Gln Asp Ala Asp Leu Ile Met Phe Met Tyr Arg Asp Glu
 405 410 415
 Tyr Tyr Asn Gln Asp Ser Pro Met Lys Gly Leu Ala Glu Cys Ile Ile
 420 425 430
 Gly Lys His Arg Asn Gly Pro Val Gly Lys Ile Phe Leu Thr Trp Thr
 435 440 445
 Gly Gln Phe Thr Lys Phe Asp Asn Ala Ala Tyr Ile Pro Glu Glu Ala
 450 455 460

Lys Ile Glu Asp
 465

<210> 92
 <211> 395
 <212> PRT
 <213> Neisseria meningitidis

<400> 92
 Met Asn Thr Leu Leu Asn Gln Leu Lys Pro Tyr Pro Phe Ala Arg Leu
 1 5 10 15
 Arg Glu Ala Met Gln Gly Ile Ser Ala Pro Glu Gly Leu Glu Ala Val
 20 25 30
 Pro Leu His Ile Gly Glu Pro Lys His Pro Thr Pro Lys Val Ile Thr
 35 40 45
 Asp Ala Leu Thr Ala Ser Leu His Glu Leu Glu Lys Tyr Pro Leu Thr
 50 55 60
 Ala Gly Leu Pro Glu Leu Arg Gln Ala Cys Ala Asn Trp Leu Lys Arg
 65 70 75 80
 Arg Tyr Asp Gly Leu Thr Val Asp Ala Asp Asn Glu Ile Leu Pro Val
 85 90 95
 Leu Gly Ser Arg Glu Ala Leu Phe Ser Phe Val Gln Thr Val Leu Asn
 100 105 110
 Pro Val Ser Asp Gly Ile Lys Pro Ala Ile Val Ser Pro Asn Pro Phe
 115 120 125

SEQLIST_PP019737.0004.txt

Tyr Gln Ile Tyr Glu Gly Ala Thr Leu Leu Gly Gly Gly Glu Ile His
 130 135 140
 Phe Ala Asn Cys Pro Ala Pro Ser Phe Asn Pro Asp Trp Arg Ser Ile
 145 150 155 160
 Ser Glu Glu Val Trp Lys Arg Thr Lys Leu Val Phe Val Cys Ser Pro
 165 170 175
 Asn Asn Pro Ser Gly Ser Val Leu Asp Leu Asp Gly Trp Lys Glu Val
 180 185 190
 Phe Asp Leu Gln Asp Lys Tyr Gly Phe Ile Ile Ala Ser Asp Glu Cys
 195 200 205
 Tyr Ser Glu Ile Tyr Phe Asp Gly Asn Lys Pro Leu Gly Cys Leu Gln
 210 215 220
 Ala Ala Ala Gln Leu Gly Arg Ser Arg Gln Lys Leu Leu Met Phe Thr
 225 230 235 240
 Ser Leu Ser Lys Arg Ser Asn Val Pro Gly Leu Arg Ser Gly Phe Val
 245 250 255
 Ala Gly Asp Ala Glu Leu Leu Lys Asn Phe Leu Leu Tyr Arg Thr Tyr
 260 265 270
 His Gly Ser Ala Met Ser Ile Pro Val Gln Arg Ala Ser Ile Ala Ala
 275 280 285
 Trp Asp Asp Glu Gln His Val Ile Asp Asn Arg Arg Met Tyr Gln Glu
 290 295 300
 Lys Phe Glu Arg Val Ile Pro Ile Leu Gln Gln Val Phe Asp Val Lys
 305 310 315 320
 Leu Pro Asp Ala Ser Phe Tyr Ile Trp Leu Lys Val Pro Asp Gly Asp
 325 330 335
 Asp Leu Ala Leu Ala Arg Asn Leu Trp Gln Lys Ala Ala Ile Gln Val
 340 345 350
 Leu Pro Gly Arg Phe Leu Ala Arg Asp Thr Glu Gln Gly Asn Pro Gly
 355 360 365
 Glu Gly Tyr Val Arg Ile Ala Leu Val Ala Asp Val Ala Thr Cys Val
 370 375 380
 Lys Ala Ala Glu Thr Ile Val Ser Leu Tyr Arg
 385 390 395
 <210> 93
 <211> 741
 <212> PRT
 <213> Neisseria meningitidis
 <400> 93
 Met Thr Gln Lys Ser Thr Ile Val Tyr Thr His Thr Asp Glu Ala Pro
 1 5 10 15
 Ala Leu Ala Thr Gln Ser Leu Leu Pro Ile Val Gln Ala Phe Ala Arg
 20 25 30

SEQLIST_PP019737.0004.txt

His Ala Asp Ile Asp Val Lys Thr Ser Asp Ile Ser Leu Ser Gly Arg
35 40 45
Ile Leu Ala Ala Phe Pro Glu Tyr Leu Thr Glu Ala Gln Arg Val Pro
50 55 60
Asp Ala Leu Ala Glu Leu Gly Glu Leu Val Lys Gln Pro Asp Ala Asn
65 70 75 80
Val Ile Lys Leu Pro Asn Ile Ser Ala Ser Val Pro Gln Leu Thr Ala
85 90 95
Ala Ile Lys Glu Leu Gln Ser Lys Gly Phe Ala Val Pro Asp Tyr Pro
100 105 110
Ala Asp Pro Gln Thr Asp Glu Glu Lys Ala Val Arg Glu Arg Tyr Asp
115 120 125
Arg Ile Lys Gly Ser Ala Val Asn Pro Val Leu Arg Glu Gly Asn Ser
130 135 140
Asp Arg Arg Ala Pro Lys Ala Val Lys Asn Phe Ala Lys Lys Asn Pro
145 150 155 160
His Ser Met Gly Ala Trp Thr Lys Asp Ser Lys Thr His Val Ala Thr
165 170 175
Met Gln Ser Gly Asp Phe Phe His Asn Glu Gln Ser Val Ile Val Pro
180 185 190
Glu Ala Thr Ser Val Ser Ile Val Phe Thr Asp Lys Gln Gly Asn Lys
195 200 205
Lys Glu Leu Arg Glu Pro Val Ala Leu Lys Ala Gly Glu Ile Ile Asp
210 215 220
Ala Thr Val Met Ser Lys Lys Ala Leu Leu Ala Phe Leu Ala Glu Gln
225 230 235 240
Val Lys Asp Ala Lys Ala Lys Gly Val Leu Phe Ser Leu His Met Lys
245 250 255
Ala Thr Met Met Lys Val Ser Asp Pro Ile Ile Phe Gly His Ala Val
260 265 270
Lys Val Phe Phe Ala Pro Val Phe Glu Lys Phe Gly Asp Lys Leu Ala
275 280 285
Ala Ala Gly Val Asn Val Asn Asn Gly Phe Gly Asn Leu Leu Ala Asn
290 295 300
Leu Asp Lys Leu Asp Ala Asp Thr Arg Thr Ala Val Glu Ala Glu Ile
305 310 315 320
Ala Ala Val Tyr Ala Ala Asn Pro Asp Leu Ala Met Val Asp Ser Asp
325 330 335
Lys Gly Ile Thr Asn Leu His Val Pro Ser Asp Val Ile Val Asp Ala
340 345 350
Ser Met Pro Ala Met Ile Arg Asn Ser Gly Arg Met Trp Asp Lys Asn
355 360 365

SEQLIST_PP019737.0004.txt

Gly Lys Ala Gln Asp Thr Lys 370 Ala Val Ile Pro Asp Ser Ser Tyr Ala 380
 Gly Val Tyr Gln Ala Thr Ile Asp Phe Cys Arg Glu His Gly Ala Phe 385 390 395 400
 Asp Pro Thr Thr Met Gly Thr Val Pro Asn Val Gly Leu Met Ala Gln 405 410 415
 Ala Ala Glu Glu Tyr Gly Ser His Asn Lys Thr Phe Glu Ile Glu Ala 420 425 430
 Asp Gly Gln Val Gln Val Ile Asp Ala Ala Gly Lys Val Leu Met Gln 435 440 445
 His Asp Val Glu Ala Gly Asp Ile Trp Arg Met Cys Gln Thr Lys Asp 450 455 460
 Ala Pro Val Lys Asp Trp Val Gln Leu Ala Val Asn Arg Ala Arg Leu 465 470 475 480
 Ser Asn Thr Pro Ala Val Phe Trp Leu Asp Glu Asn Arg Pro His Asp 485 490 495
 Lys Ser Leu Leu Ala Lys Val Lys Ala Tyr Leu Ala Glu Leu Asp Thr 500 505 510
 Asn Gly Leu Asp Ile Arg Val Leu Ala Pro Glu Glu Ala Ala Lys Phe 515 520 525
 Ser Leu Gly Arg Leu Lys Asn Gly Glu Asp Thr Ile Ser Val Thr Gly 530 535 540
 Asn Val Leu Arg Asp Tyr Leu Thr Asp Leu Phe Pro Ile Leu Glu Leu 545 550 555 560
 Gly Thr Ser Ala Lys Met Leu Ser Ile Val Pro Leu Met Asn Gly Gly 565 570 575
 Gly Met Phe Glu Thr Gly Ala Gly Gly Ser Ala Pro Lys His Val Gln 580 585 590
 Gln Phe Leu Glu Glu Asn His Leu Arg Trp Asp Ser Leu Gly Glu Phe 595 600 605
 Leu Ala Leu Ala Val Ser Phe Glu His Leu Ala Gln Lys Thr Gly Asn 610 615 620
 Ala Lys Ala Gln Val Leu Ala Asp Thr Leu Asp Ala Ala Thr Glu Lys 625 630 635 640
 Leu Leu Leu Asn Asp Lys Ser Pro Lys Arg Lys Ala Gly Glu Leu Asp 645 650 655
 Asn Arg Gly Ser His Phe Tyr Leu Thr Leu Tyr Trp Ala Gln Glu Leu 660 665 670
 Ala Ala Gln Asp Lys Asp Ala Glu Leu Lys Ala Ala Phe Thr Pro Leu 675 680 685
 Ala Ala Ala Leu Thr Ala Asp Glu Ala Lys Ile Val Ala Glu Leu Ser 690 695 700

SEQLIST_PP019737.0004.txt

Ala Val Gln Gly Lys Ala Ala Asp Ile Gly Gly Tyr Tyr Ala Ala Asn
705 710 715 720

Pro Glu Lys Ala Ala Gln Val Met Arg Pro Ser Val Thr Phe Asn Gln
725 730 735

Ala Leu Asn Ala Leu
740

<210> 94
<211> 758
<212> PRT
<213> Neisseria meningitidis

<400> 94
Met Thr Thr Leu His Phe Ser Gly Phe Pro Arg Val Gly Ala Phe Arg
1 5 10 15

Glu Leu Lys Phe Ala Gln Glu Lys Tyr Trp Arg Lys Glu Ile Ser Glu
20 25 30

Gln Glu Leu Leu Ala Val Ala Lys Asp Leu Arg Glu Lys Asn Trp Lys
35 40 45

His Gln Val Ala Ala Asn Ala Asp Phe Val Ala Val Gly Asp Phe Thr
50 55 60

Phe Tyr Asp His Ile Leu Asp Leu Gln Val Ala Thr Gly Ala Ile Pro
65 70 75 80

Ala Arg Phe Gly Phe Asp Ser Gln Asn Leu Ser Leu Glu Gln Phe Phe
85 90 95

Gln Leu Ala Arg Gly Asn Lys Asp Gln Phe Ala Ile Glu Met Thr Lys
100 105 110

Trp Phe Asp Thr Asn Tyr His Tyr Leu Val Pro Glu Phe His Ala Asp
115 120 125

Thr Glu Phe Lys Ala Asn Ala Lys His Tyr Val Gln Gln Leu Gln Glu
130 135 140

Ala Gln Ala Leu Gly Leu Lys Ala Lys Pro Thr Val Val Gly Pro Leu
145 150 155 160

Thr Phe Leu Trp Val Gly Lys Glu Lys Gly Ala Val Glu Phe Asp Arg
165 170 175

Leu Ser Leu Leu Pro Lys Leu Leu Pro Val Tyr Val Glu Ile Leu Thr
180 185 190

Ala Leu Val Glu Ala Gly Ala Glu Trp Ile Gln Ile Asp Glu Pro Ala
195 200 205

Leu Ala Val Asp Leu Pro Lys Glu Trp Val Glu Ala Tyr Lys Asp Val
210 215 220

Tyr Ala Thr Leu Ser Lys Val Ser Ala Lys Ile Leu Leu Ser Thr Tyr
225 230 235 240

Phe Gly Ser Val Ala Glu His Ala Ala Leu Leu Lys Ala Leu Pro Val
245 250 255

SEQLIST_PP019737.0004.txt

Asp Gly Leu His Ile Asp Leu Val Arg Ala Pro Glu Gln Leu Asp Ala
 260 265 270
 Phe Ala Asp Tyr Asp Lys Val Leu Ser Ala Gly Val Ile Asp Gly Arg
 275 280 285
 Asn Ile Trp Arg Ala Asn Leu Asn Lys Val Leu Glu Thr Val Glu Pro
 290 295 300
 Leu Gln Ala Lys Leu Gly Asp Arg Leu Trp Ile Ser Ser Ser Cys Ser
 305 310 315 320
 Leu Leu His Thr Pro Phe Asp Leu Ser Val Glu Glu Lys Leu Lys Ala
 325 330 335
 Asn Lys Pro Asp Leu Tyr Ser Trp Leu Ala Phe Thr Leu Gln Lys Thr
 340 345 350
 Gln Glu Leu Arg Val Leu Lys Ala Ala Leu Asn Glu Gly Arg Asp Ser
 355 360 365
 Val Ala Glu Glu Leu Ala Ala Ser Gln Ala Ala Ala Asp Ser Arg Ala
 370 375 380
 Asn Ser Ser Glu Ile His Arg Ala Asp Val Ala Lys Arg Leu Ala Asp
 385 390 395 400
 Leu Pro Ala Asn Ala Asp Gln Arg Lys Ser Pro Phe Ala Asp Arg Ile
 405 410 415
 Lys Ala Gln Gln Ala Trp Leu Asn Leu Pro Leu Leu Pro Thr Thr Asn
 420 425 430
 Ile Gly Ser Phe Pro Gln Thr Thr Glu Ile Arg Gln Ala Arg Ser Ala
 435 440 445
 Phe Lys Lys Gly Glu Leu Ser Ala Ala Asp Tyr Glu Ala Ala Met Lys
 450 455 460
 Lys Glu Ile Ala Leu Val Val Glu Glu Gln Glu Lys Leu Asp Leu Asp
 465 470 475 480
 Val Leu Val His Gly Glu Ala Glu Arg Asn Asp Met Val Glu Tyr Phe
 485 490 495
 Gly Glu Leu Leu Ser Gly Phe Ala Phe Thr Gln Tyr Gly Trp Val Gln
 500 505 510
 Ser Tyr Gly Ser Arg Cys Val Lys Pro Pro Ile Ile Phe Gly Asp Val
 515 520 525
 Ser Arg Pro Glu Ala Met Thr Val Ala Trp Ser Thr Tyr Ala Gln Ser
 530 535 540
 Leu Thr Lys Arg Pro Met Lys Gly Met Leu Thr Gly Pro Val Thr Ile
 545 550 555 560
 Leu Gln Trp Ser Phe Val Arg Asn Asp Ile Pro Arg Ser Thr Val Cys
 565 570 575
 Lys Gln Ile Ala Leu Ala Leu Asn Asp Glu Val Leu Asp Leu Glu Lys
 580 585 590

Ala Gly Ile Lys Val Ile Gln Ile Asp Glu Pro Ala Ile Arg Glu Gly
595 600 605

Leu Pro Leu Lys Arg Ala Asp Trp Asp Ala Tyr Leu Asn Trp Ala Gly
610 615 620

Glu Ser Phe Arg Leu Ser Ser Ala Gly Cys Glu Asp Ser Thr Gln Ile
625 630 635 640

His Thr His Met Cys Tyr Ser Glu Phe Asn Asp Ile Leu Pro Ala Ile
645 650 655

Ala Ala Met Asp Ala Asp Val Ile Thr Ile Glu Thr Ser Arg Ser Asp
660 665 670

Met Glu Leu Leu Thr Ala Phe Gly Glu Phe Gln Tyr Pro Asn Asp Ile
675 680 685

Gly Pro Gly Val Tyr Asp Ile His Ser Pro Arg Val Pro Thr Glu Ala
690 695 700

Glu Val Glu His Leu Leu Arg Lys Ala Ile Glu Val Val Pro Val Glu
705 710 715 720

Arg Leu Trp Val Asn Pro Asp Cys Gly Leu Lys Thr Arg Gly Trp Lys
725 730 735

Glu Thr Leu Glu Gln Leu Gln Val Met Met Asn Val Thr Arg Lys Leu
740 745 750

Arg Ala Glu Leu Ala Lys
755

<210> 95
<211> 245
<212> PRT
<213> Neisseria meningitidis

<400> 95
Met Ala Leu Gln Asp Arg Thr Gly Gln Lys Val Pro Ser Val Val Phe
1 5 10 15

Arg Thr Arg Val Gly Asp Thr Trp Lys Asp Val Ser Thr Asp Asp Leu
20 25 30

Phe Lys Gly Lys Lys Val Val Val Phe Ser Leu Pro Gly Ala Phe Thr
35 40 45

Pro Thr Cys Ser Ser Ser His Leu Pro Arg Tyr Asn Glu Leu Phe Gly
50 55 60

Ala Phe Lys Glu Asn Gly Val Asp Ala Ile Tyr Cys Val Ser Val Asn
65 70 75 80

Asp Thr Phe Val Met Asn Ala Trp Ala Ala Glu Glu Glu Ser Asp Asn
85 90 95

Ile Tyr Met Ile Pro Asp Gly Asn Gly Glu Phe Thr Glu Gly Met Gly
100 105 110

Met Leu Val Gly Lys Glu Asp Leu Gly Phe Gly Lys Arg Ser Trp Arg
115 120 125

SEQLIST_PP019737.0004.txt

Tyr Ser Met Leu Val Asn Asp Gly Val Val Glu Lys Met Phe Ile Glu
 130 135 140
 Pro Glu Glu Pro Gly Asp Pro Phe Lys Val Ser Asp Ala Asp Thr Met
 145 150 155 160
 Leu Gln Phe Val Ala Pro Asp Trp Lys Ala Gln Glu Ser Val Ala Ile
 165 170 175
 Phe Thr Lys Pro Gly Cys Gln Phe Cys Ala Lys Ala Lys Gln Ala Leu
 180 185 190
 Gln Asp Lys Gly Leu Ser Tyr Glu Glu Ile Val Leu Gly Lys Asp Ala
 195 200 205
 Thr Val Thr Ser Val Arg Ala Ile Thr Gly Lys Met Thr Ala Pro Gln
 210 215 220
 Val Phe Ile Gly Gly Lys Tyr Ile Gly Gly Ser Glu Asp Leu Glu Ala
 225 230 235 240
 Tyr Leu Ala Lys Asn
 245

<210> 96
 <211> 467
 <212> PRT
 <213> Neisseria meningitidis

<400> 96
 Met Lys Lys Ile Gln Ala Asp Val Val Val Ile Gly Gly Gly Thr Ala
 1 5 10 15
 Gly Met Gly Ala Phe Arg Asn Ala Arg Leu His Ser Asp Asn Val Tyr
 20 25 30
 Leu Ile Glu Asn Asn Val Phe Gly Thr Thr Cys Ala Arg Val Gly Cys
 35 40 45
 Met Pro Ser Lys Leu Leu Ile Ala Ala Ala Glu Ala Arg His His Ala
 50 55 60
 Leu His Thr Asp Pro Phe Gly Val His Leu Asp Lys Asp Ser Ile Val
 65 70 75 80
 Val Asn Gly Glu Glu Val Met Gln Arg Val Lys Ser Glu Arg Asp Arg
 85 90 95
 Phe Val Gly Phe Val Val Ala Asp Val Glu Glu Trp Pro Ala Asp Lys
 100 105 110
 Arg Ile Met Gly Ser Ala Lys Phe Ile Asp Glu His Thr Val Gln Ile
 115 120 125
 Asp Glu His Thr Gln Ile Thr Ala Lys Ser Phe Val Ile Ala Thr Gly
 130 135 140
 Ser Arg Pro Val Ile Leu Pro Gln Trp Gln Ser Leu Gly Asn Arg Leu
 145 150 155 160
 Ile Ile Asn Asp Asp Val Phe Ser Trp Asp Thr Leu Pro Lys Arg Val
 165 170 175

SEQLIST_PP019737.0004.txt

Ala Val Phe Gly Pro Gly Val Ile Gly Leu Glu Leu Gly Gln Ala Leu
180 185 190
His Arg Leu Gly Val Lys Val Glu Ile Phe Gly Leu Gly Gly Ile Ile
195 200 205
Gly Gly Ile Ser Asp Pro Val Val Ser Asp Glu Ala Asn Ala Val Phe
210 215 220
Gly Glu Glu Leu Lys Leu His Leu Asp Ala Lys Thr Glu Val Lys Leu
225 230 235 240
Asp Ala Asp Gly Asn Val Glu Val His Trp Glu Gln Asp Gly Glu Lys
245 250 255
Gly Val Phe Val Ala Glu Tyr Met Leu Ala Ala Val Gly Arg Arg Pro
260 265 270
Asn Val Asp Asn Ile Gly Leu Glu Asn Ile Asn Ile Glu Lys Asp Ala
275 280 285
Arg Gly Val Pro Val Ala Asp Pro Leu Thr Met Gln Thr Ser Ile Pro
290 295 300
His Ile Phe Ile Ala Gly Asp Ala Ser Asn Gln Leu Pro Leu Leu His
305 310 315 320
Glu Ala Ala Asp Gln Gly Lys Ile Ala Gly Asp Asn Ala Gly Arg Tyr
325 330 335
Pro Asn Ile Gly Gly Gly Leu Arg Arg Ser Thr Ile Gly Val Val Phe
340 345 350
Thr Ser Pro Gln Ile Gly Phe Val Gly Leu Lys Tyr Ala Gln Val Ala
355 360 365
Ala Gln Tyr Gln Ala Asp Glu Phe Val Ile Gly Glu Val Ser Phe Lys
370 375 380
Asn Gln Gly Arg Ser Arg Val Met Leu Val Asn Lys Gly His Met Arg
385 390 395 400
Leu Tyr Ala Glu Lys Ala Thr Gly Arg Phe Ile Gly Ala Glu Ile Val
405 410 415
Gly Pro Ala Ala Glu His Leu Ala His Leu Leu Ala Trp Ala His Gln
420 425 430
Met Lys Met Thr Val Pro Gln Met Leu Asp Met Pro Phe Tyr His Pro
435 440 445
Val Ile Glu Glu Gly Leu Arg Thr Ala Leu Arg Asp Ala Asp Ala Lys
450 455 460
Leu Lys Ala
465

<210> 97
<211> 942
<212> PRT
<213> Neisseria meningitidis
<400> 97

SEQLIST_PP019737.0004.txt

Met Met Asp Glu Lys Leu Asn Phe Ser Tyr Leu Phe Gly Ser Asn Ala
1 5 10 15
Pro Tyr Ile Glu Glu Leu Tyr Glu Ala Phe Leu Glu Asn Pro Asp Ala
20 25 30
Val Asp Glu Lys Trp Lys Gln Tyr Phe Thr Asp Leu Ser Lys Gln Pro
35 40 45
Gly Thr Val Ala Val Asp Val Ala His Thr Pro Ile Arg Glu Ser Phe
50 55 60
Val Thr Leu Ala Lys Lys Lys Ile Ala Ser Ala Val Ala Gly Gly Ala
65 70 75 80
Asp Glu Ala Met Leu Lys Lys Gln Val Ser Val Leu Arg Leu Ile Ser
85 90 95
Ala Tyr Arg Ile Gln Gly Val Gly Ala Ala Gln Leu Asp Pro Leu Lys
100 105 110
Arg Ile Pro Pro Arg Asp Ile Glu Ala Leu Asp Pro Lys Phe His Gly
115 120 125
Leu Ser Asp Ala Asp Met Ala Leu Gln Phe Asn Met Gly Glu Gly Asp
130 135 140
Phe Ala Asn Arg Gly Lys Leu Pro Leu Ser Gln Ile Ile Ser Asn Leu
145 150 155 160
Lys Gln Thr Tyr Cys Gly His Ile Ala Leu Glu Tyr Ile Tyr Ile Pro
165 170 175
Asn Thr Glu Glu Arg Arg Trp Val Arg Asn Tyr Phe Glu Ser Val Leu
180 185 190
Ser Thr Pro His Tyr Asn Ala Asp Gln Lys Arg Arg Ile Leu Lys Glu
195 200 205
Met Thr Ala Ala Glu Thr Leu Glu Arg Tyr Leu His Thr Lys Tyr Val
210 215 220
Gly Gln Lys Arg Phe Gly Val Glu Gly Gly Glu Ser Ala Ile Ala Gly
225 230 235 240
Leu Asn Tyr Leu Ile Gln Asn Ala Gly Lys Asp Gly Val Glu Glu Val
245 250 255
Ile Ile Gly Met Ala His Arg Gly Arg Leu Asn Val Leu Val Asn Ile
260 265 270
Leu Gly Lys Lys Pro Gly Asp Leu Phe Ala Glu Phe Glu Gly Arg Ala
275 280 285
Glu Ile Lys Leu Pro Ser Gly Asp Val Lys Tyr His Met Gly Phe Ser
290 295 300
Ser Asp Ile Ala Thr Pro His Gly Pro Met His Val Ser Leu Ala Phe
305 310 315 320
Asn Pro Ser His Leu Glu Ile Val Asn Pro Val Val Glu Gly Ser Ala
325 330 335

SEQLIST_PP019737.0004.txt

Arg Ala Lys Gln Lys Arg Leu Gly Glu Asn Gly Arg Asp Lys Val Leu
340 345 350

Pro Val Leu Ile His Gly Asp Ser Ala Phe Ile Gly Leu Gly Val Asn
355 360 365

Gln Ala Thr Phe Asn Leu Ser Lys Thr Arg Gly Tyr Thr Thr Gly Gly
370 375 380

Thr Val His Ile Val Ile Asn Asn Gln Ile Gly Phe Thr Thr Ser Asp
385 390 395 400

Ile Arg Asp Thr Arg Ser Thr Val His Cys Thr Asp Ile Ala Lys Met
405 410 415

Val Ser Ala Pro Val Ile His Val Asn Gly Asp Asp Pro Glu Arg Val
420 425 430

Cys Phe Ala Ile Gln Ala Ala Leu Asp Tyr Arg Lys Lys Phe His Lys
435 440 445

Asp Ile Val Ile Asp Val Val Cys Tyr Arg Lys Trp Gly His Asn Glu
450 455 460

Gly Asp Asp Pro Thr Leu Thr Gln Pro Met Met Tyr Lys Lys Val Ser
465 470 475 480

Gln His Pro Gly Ala Arg Ala Leu Tyr Thr Glu Gln Leu Ile Ala Glu
485 490 495

Gly Val Val Thr Gln Ala Glu Ala Asp Gly Tyr Ile Gln Ala Tyr Arg
500 505 510

Asp Ala Leu Asp Lys Gly Glu His Val Glu Gln Thr Thr Leu Ser Asn
515 520 525

Phe Gln Arg Thr Gln Ile Asp Trp Ser Lys Tyr Gln Gly Lys Asp Trp
530 535 540

Arg Glu His Ile Glu Thr Gly Leu Pro Ala Ala Asp Ile Glu Arg Leu
545 550 555 560

Thr Glu Lys Phe Thr Ala Val Pro Glu Gly Phe Ala Leu His Pro Thr
565 570 575

Ala Lys Arg Val Ile Glu Ala Arg Lys Ala Met Ala Ser Gly Lys Gln
580 585 590

Ala Ile Asp Trp Gly Met Ala Glu Thr Leu Ala Tyr Ala Ser Leu Val
595 600 605

Thr Lys Gly His Gly Val Arg Ile Ser Gly Glu Asp Ser Gly Arg Gly
610 615 620

Thr Phe Ser His Arg His Ala Val Leu His Asp Gln Lys Arg Glu Lys
625 630 635 640

Trp Asp Asp Gly Thr Tyr Val Pro Leu Arg His Met Gly Glu Gly Met
645 650 655

Gly Glu Phe Leu Val Ile Asp Ser Ile Leu Asn Glu Glu Ala Val Met
660 665 670

SEQLIST_PP019737.0004.txt

Ala Phe Glu Tyr Gly Phe Ala Cys Ser Ala Pro Asp Lys Leu Thr Ile
675 680 685

Trp Glu Ala Gln Phe Gly Asp Phe Ala Asn Gly Ala Gln Val Thr Ile
690 695 700

Asp Gln Phe Leu Ser Ser Gly Glu Thr Lys Trp Gly Arg Leu Cys Gly
705 710 715 720

Leu Thr Thr Ile Leu Pro His Gly Tyr Asp Gly Gln Gly Pro Glu His
725 730 735

Ser Ser Ala Arg Val Glu Arg Trp Leu Gln Leu Cys Ser Glu Asn Asn
740 745 750

Met Gln Val Ile Met Pro Ser Glu Ala Ser Gln Met Phe His Leu Leu
755 760 765

Gln Arg Gln Val Leu Gly Ser Tyr Arg Lys Pro Leu Val Ile Phe Met
770 775 780

Ser Lys Arg Leu Leu Arg Phe Lys Gly Ala Met Ser Pro Leu Glu Asn
785 790 795 800

Phe Thr Glu Gly Ser Thr Phe Arg Pro Val Ile Gly Asp Thr Ala Glu
805 810 815

Arg Ala Ser Asn Asp Ser Val Lys Arg Val Val Leu Cys Ala Gly Gln
820 825 830

Val Tyr Tyr Asp Leu Glu Ala Gly Arg Ala Glu Arg Lys Leu Glu Asp
835 840 845

Asp Val Ala Ile Val Arg Val Glu Gln Leu Tyr Pro Phe Pro Tyr Asp
850 855 860

Glu Val Lys Ala Glu Leu Ala Lys Tyr Pro Asn Ala Lys Ser Val Val
865 870 875 880

Trp Ala Gln Glu Glu Pro Lys Asn Gln Gly Ala Phe Tyr Gln Ile Arg
885 890 895

His Arg Ile Glu Asp Val Ile Ser Glu Glu Gln Lys Leu Ser Tyr Ala
900 905 910

Gly Arg Pro Ser Ser Ala Ser Pro Ala Val Gly Tyr Ser Ser Lys His
915 920 925

Ile Ala Gln Leu Lys Gln Leu Val Glu Asp Ala Leu Ala Leu
930 935 940

<210> 98
<211> 393
<212> PRT
<213> Neisseria meningitidis

<400> 98
Met Ile Ile Asp Val Lys Val Pro Met Leu Ser Glu Ser Val Ser Glu
1 5 10 15

Gly Thr Leu Leu Glu Trp Lys Lys Lys Val Gly Glu Ala Val Ala Arg
20 25 30

SEQLIST_PP019737.0004.txt

Asp Glu Ile Leu Ile Asp Ile Glu Thr Asp Lys Val Val Leu Glu Val
 35 40 45
 Pro Ser Pro Gln Ala Gly Val Leu Val Glu Ile Val Ala Gln Asp Gly
 50 55 60
 Glu Thr Val Val Ala Asp Gln Val Leu Ala Arg Val Asp Thr Ala Ala
 65 70 75 80
 Thr Ala Ala Ala Glu Ala Pro Ala Ala Ala Pro Ala Glu Ala Ala Pro
 85 90 95
 Ala Ala Ala Pro Ala Ala Thr Gln Asn Asn Ala Ala Met Pro Ala Ala
 100 105 110
 Ala Lys Leu Ala Ala Glu Thr Gly Val Asp Val Asn Ala Leu Gln Gly
 115 120 125
 Ser Gly Arg Asp Gly Arg Val Leu Lys Glu Asp Val Gln Asn Ala Ala
 130 135 140
 Ala Lys Pro Ala Gly Ala Ala Ala Pro Ala Val Ala Leu Pro Ala Gly
 145 150 155 160
 Ala Arg Pro Glu Glu Arg Val Pro Met Ser Arg Leu Arg Ala Arg Val
 165 170 175
 Ala Glu Arg Leu Leu Ala Ser Gln Gln Glu Asn Ala Ile Leu Thr Thr
 180 185 190
 Phe Asn Glu Val Asn Met Lys Pro Ile Met Asp Leu Arg Ala Lys Tyr
 195 200 205
 Lys Glu Lys Phe Glu Lys Glu His Gly Val Lys Leu Gly Phe Met Ser
 210 215 220
 Phe Phe Val Lys Ala Ala Val Ala Ala Leu Lys Lys Tyr Pro Val Val
 225 230 235 240
 Asn Ala Ser Val Asp Gly Lys Asp Ile Val Tyr His Gly Tyr Phe Asp
 245 250 255
 Ile Gly Ile Ala Ile Gly Ser Pro Arg Gly Leu Val Val Pro Ile Leu
 260 265 270
 Arg Asp Ala Asp Gln Met Ser Ile Ala Asp Ile Glu Gln Ala Ile Val
 275 280 285
 Asp Tyr Ala Lys Lys Ala Lys Asp Gly Lys Ile Ala Ile Glu Asp Leu
 290 295 300
 Thr Gly Gly Thr Phe Ser Ile Thr Asn Gly Gly Thr Phe Gly Ser Met
 305 310 315 320
 Met Ser Thr Pro Ile Ile Asn Pro Pro Gln Ser Ala Ile Leu Gly Met
 325 330 335
 His Ala Thr Lys Glu Arg Ala Val Val Glu Asn Gly Gln Val Val Val
 340 345 350
 Arg Pro Met Met Tyr Leu Ala Leu Ser Tyr Asp His Arg Ile Ile Asp
 355 360 365

Gly Arg Glu Ala Val Leu Thr Leu Val Ala Ile Lys Asp Ala Leu Glu
370 375 380

Asp Pro Ala Arg Leu Leu Leu Asp Leu
385 390

<210> 99
<211> 388
<212> PRT
<213> Neisseria meningitidis

<400> 99
Met Asn Leu His Glu Tyr Gln Ala Lys Glu Leu Leu Ala Ser Tyr Gly
1 5 10 15

Leu Pro Val Gln Gly Gly Ile Leu Ala His Asn Gly Glu Glu Ala Ala
20 25 30

Ala Ala Tyr Asp Lys Leu Gly Gly Lys Phe Ala Val Val Lys Ala Gln
35 40 45

Val His Ala Gly Gly Arg Gly Lys Ala Gly Gly Val Lys Val Val Lys
50 55 60

Ser Arg Glu Glu Ala Lys Glu Val Ala Glu Ser Leu Ile Gly Thr Asn
65 70 75 80

Leu Val Thr Tyr Gln Thr Asp Ala Asn Gly Gln Pro Val Asn Ser Val
85 90 95

Leu Val Cys Glu Asp Met Tyr Pro Val Gln Thr Glu Leu Tyr Leu Gly
100 105 110

Ala Val Val Asp Arg Ser Thr Arg Arg Ile Thr Phe Met Ala Ser Thr
115 120 125

Glu Gly Gly Val Glu Ile Glu Lys Val Ala Ala Glu Thr Pro Glu Lys
130 135 140

Ile Phe Lys Val Thr Val Asp Pro Leu Val Gly Leu Gln Pro Cys Gln
145 150 155 160

Ala Arg Glu Val Ala Phe Gln Leu Gly Leu Lys Asp Lys Gln Ile Asn
165 170 175

Glu Phe Val Lys Leu Met Thr Gly Ala Tyr Lys Ala Phe Val Glu Asn
180 185 190

Asp Phe Ala Leu Phe Glu Val Asn Pro Leu Ala Val Arg Glu Asn Gly
195 200 205

Ala Leu Ala Cys Val Asp Gly Lys Ile Gly Ile Asp Ser Asn Ala Leu
210 215 220

Tyr Arg Leu Pro Lys Ile Ala Glu Leu Arg Asp Lys Ser Gln Glu Asn
225 230 235 240

Glu Arg Glu Leu Lys Ala Ser Glu Phe Asp Leu Asn Tyr Val Ala Leu
245 250 255

Glu Gly Asn Ile Gly Cys Met Val Asn Gly Ala Gly Leu Ala Met Ala
260 265 270

SEQLIST_PP019737.0004.txt

Thr Met Asp Ile Ile Lys Leu Lys Gly Gly Gln Pro Ala Asn Phe Leu
 275 280 285
 Asp Val Gly Gly Gly Ala Thr Lys Asp Arg Val Val Glu Ala Phe Lys
 290 295 300
 Leu Ile Leu Glu Asp Lys Ser Val Gln Gly Val Leu Ile Asn Ile Phe
 305 310 315 320
 Gly Gly Ile Val Arg Cys Asp Met Ile Ala Glu Ala Ile Val Ala Ala
 325 330 335
 Val Lys Glu Ile Asn Val Asn Val Pro Val Val Val Arg Leu Glu Gly
 340 345 350
 Asn Asn Ala Glu Leu Gly Ala Lys Ile Leu Asn Glu Ser Gly Leu Lys
 355 360 365
 Leu Thr Ser Ala Asp Gly Leu Asn Asp Ala Ala Glu Lys Ile Val Ala
 370 375 380
 Ala Val Asn Ala
 385

<210> 100
 <211> 296
 <212> PRT
 <213> Neisseria meningitidis

<400> 100
 Met Ser Val Leu Ile Asn Lys Asp Thr Lys Val Leu Val Gln Gly Phe
 1 5 10 15
 Thr Gly Lys Asn Gly Thr Phe His Ser Glu Gln Ala Leu Ala Tyr Gly
 20 25 30
 Thr Lys Val Val Gly Gly Val Thr Pro Gly Lys Gly Gly Gln Thr His
 35 40 45
 Leu Asn Leu Pro Val Phe Asn Thr Met Lys Glu Ala Val Lys Glu Thr
 50 55 60
 Gly Ala Asp Ala Ser Val Ile Tyr Val Pro Ala Pro Phe Val Leu Asp
 65 70 75 80
 Ser Ile Val Glu Ala Val Asp Ser Gly Val Gly Leu Val Val Val Ile
 85 90 95
 Thr Glu Gly Val Pro Thr Leu Asp Met Leu Lys Ala Lys Arg Tyr Leu
 100 105 110
 Glu Thr Asn Gly Asn Gly Thr Arg Leu Val Gly Pro Asn Cys Pro Gly
 115 120 125
 Val Ile Thr Pro Gly Glu Cys Lys Ile Gly Ile Met Pro Gly His Ile
 130 135 140
 His Thr Pro Gly Arg Ile Gly Ile Ile Ser Arg Ser Gly Thr Leu Thr
 145 150 155 160
 Tyr Glu Ala Val Ala Gln Thr Thr Lys Leu Gly Leu Gly Gln Ser Thr
 165 170 175

SEQLIST_PP019737.0004.txt

Cys Ile Gly Ile Gly Gly Asp Pro Ile Pro Gly Met Asn Gln Ile Asp
180 185 190

Ala Leu Lys Leu Phe Gln Glu Asp Pro Asp Thr Asp Ala Ile Ile Met
195 200 205

Ile Gly Glu Ile Gly Gly Thr Ala Glu Glu Glu Ala Ala Glu Tyr Ile
210 215 220

Gln Ser Asn Val Ser Lys Pro Val Val Gly Tyr Ile Ala Gly Val Thr
225 230 235 240

Ala Pro Lys Gly Lys Arg Met Gly His Ala Gly Ala Ile Ile Ser Gly
245 250 255

Gly Lys Gly Thr Ala Glu Glu Lys Phe Ala Ala Phe Glu Lys Ala Gly
260 265 270

Ile Ala Tyr Thr Arg Ser Pro Ala Glu Leu Gly Thr Thr Met Leu Glu
275 280 285

Val Leu Lys Ala Lys Gly Leu Ala
290 295

<210> 101
<211> 526
<212> PRT
<213> Neisseria meningitidis

<400> 101
Met Ser Ser Ile Lys Arg Ala Leu Ile Ser Leu Ser Asp Lys Thr Gly
1 5 10 15

Ala Val Glu Phe Ala Gln Thr Leu His Lys Leu Gly Val Glu Ile Leu
20 25 30

Ser Thr Gly Gly Thr Ala Lys Leu Leu Ala Asp Ala Gly Val Pro Val
35 40 45

Ile Glu Val Ala Asp Tyr Thr Gly Phe Pro Glu Met Leu Asp Gly Arg
50 55 60

Val Lys Thr Leu His Pro Lys Ile His Gly Gly Ile Leu Gly Arg Arg
65 70 75 80

Asp Leu Asp Glu His Val Ala Lys Met Glu Glu His Gly Ile Gly Asn
85 90 95

Ile Asp Leu Val Cys Val Asn Leu Tyr Leu Phe Ala Ala Thr Ile Ala
100 105 110

Lys Pro Asn Cys Thr Leu Glu Asp Ala Ile Glu Asn Ile Asp Ile Gly
115 120 125

Gly Pro Thr Met Val Arg Ser Ala Ala Lys Asn Trp Lys His Val Ala
130 135 140

Ile Val Thr Asp Thr Ala Asp Phe Pro Ala Ile Ala Ala Glu Leu Glu
145 150 155 160

Ala Asn Asn Gly Ala Leu Ser Asp Lys Thr Arg Phe Asn Leu Ser Arg
165 170 175

SEQLIST_PP019737.0004.txt

Lys Ala Phe Ser His Thr Ala Gln Tyr Asp Gly Met Ile Ser Asn Tyr
 180 185 190
 Leu Thr Ser Leu Ser Asp Asp Val Leu Ser Gly Thr Pro Glu Ile Ala
 195 200 205
 Gly Phe Pro Gly Arg Phe Asn Gln Ser Trp Ile Lys Val Gln Asp Met
 210 215 220
 Arg Tyr Gly Glu Asn Pro His Gln Arg Ala Ala Phe Tyr Arg Asp Ile
 225 230 235 240
 Asp Pro Ala Ala Gly Ser Leu Ala Ala Tyr Lys Gln Leu Gln Gly Lys
 245 250 255
 Glu Leu Ser Tyr Asn Asn Ile Ala Asp Ala Asp Ala Ala Trp Glu Ala
 260 265 270
 Val Lys Ser Phe Asp Val Pro Ala Cys Val Ile Val Lys His Ala Asn
 275 280 285
 Pro Cys Gly Val Ala Ile Ala Ser Asn Thr Leu Asp Ala Tyr Lys Leu
 290 295 300
 Ala Tyr Ala Thr Asp Thr Thr Ser Ala Phe Gly Gly Ile Ile Ala Phe
 305 310 315 320
 Asn Arg Glu Val Asp Gly Ala Thr Val Lys Gln Ile Thr Asp Asn Gln
 325 330 335
 Phe Met Glu Val Leu Met Ala Pro Lys Phe Thr Ala Glu Ala Leu Glu
 340 345 350
 Ile Ala Ala Ala Lys Lys Asn Val Arg Val Leu Glu Val Pro Leu Glu
 355 360 365
 Ala Gly Ala Asn Arg Phe Glu Leu Lys Arg Val Gly Gly Gly Leu Leu
 370 375 380
 Val Gln Thr Pro Asp Ile His Arg Ile Ser Arg Ala Asp Leu Lys Val
 385 390 395 400
 Val Ser Lys Arg Gln Pro Thr Glu Gln Glu Trp Asn Asp Leu Leu Phe
 405 410 415
 Val Trp Asn Val Ala Lys Tyr Val Lys Ser Asn Ala Ile Val Phe Gly
 420 425 430
 Lys Gly Gly Gln Thr Tyr Gly Ile Gly Ala Gly Gln Met Ser Arg Val
 435 440 445
 Asp Ser Thr Arg Ile Ala Ala Arg Lys Ala Gln Asp Ala Gly Leu Asp
 450 455 460
 Leu Asn Gly Ala Cys Ala Ala Ser Asp Ala Phe Phe Pro Phe Arg Asp
 465 470 475 480
 Gly Val Asp Val Ile Ala Glu Gln Gly Ile Lys Ala Ile Ile His Pro
 485 490 495
 Ala Gly Ser Met Arg Asp Gln Glu Val Phe Asp Ala Ala Asp Glu His
 500 505 510

Gly Ile Ala Met Val Val Thr Gly Ile Arg His Phe Arg His
515 520 525

<210> 102

<211> 563

<212> PRT

<213> Neisseria meningitidis

<400> 102

Met Ser Ala Ser Gln Leu Leu Ser Arg Leu Thr Gln Thr Val Gly Glu
1 5 10 15

Lys Tyr Ile Ile Thr Asp Pro Ala Lys Thr Glu Gln Tyr Arg Gln Gly
20 25 30

Tyr Arg Phe Gly Glu Gly Lys Ala Leu Ala Val Val Arg Pro Gly Ser
35 40 45

Ile Leu Glu Met Trp Lys Ile Leu Gln Ala Cys Val Glu Ala Asp Val
50 55 60

Ile Val Ile Thr Gln Ala Ala Asn Thr Gly Leu Thr Gly Gly Ser Thr
65 70 75 80

Pro Asp Gly Asn Asp Tyr Asp Arg Asp Ile Val Ile Val Asn Thr Met
85 90 95

Arg Met Asn Ile Ile Gln Thr Ile Asn Asn Asn Glu Gln Val Val Cys
100 105 110

Leu Pro Gly Ser Thr Leu Asn Gln Leu Glu Leu Leu Lys Pro Leu
115 120 125

Gly Arg Glu Pro His Ser Val Ile Gly Ser Ser Cys Ile Gly Ala Ser
130 135 140

Val Leu Gly Gly Val Cys Asn Asn Ser Gly Gly Ala Leu Val Gln Arg
145 150 155 160

Gly Pro Ala Tyr Thr Glu Met Ala Leu Phe Ala Gln Ile Asn Glu Glu
165 170 175

Gly Arg Leu Glu Leu Val Asn His Leu Gly Ile Asp Leu Gly Asn Thr
180 185 190

Pro Glu Glu Ile Leu Thr Asn Leu Gln Gly His His Tyr Gln Asn Lys
195 200 205

Asp Ile Thr Gln Asp Ala Gly Lys Gly His Asp His Ala Tyr Cys Glu
210 215 220

His Val Arg Gln Val Asp Glu Pro Thr Ala Ala Arg Phe Asn Ala Asp
225 230 235 240

Pro Ala Arg His Tyr Glu Ala Ser Gly Cys Ala Gly Lys Leu Met Val
245 250 255

Phe Ala Val Arg Leu Asp Thr Phe Pro Gln Glu Lys Gln Thr Ala Val
260 265 270

Phe Tyr Ile Gly Thr Asn Asp Ile Asn Glu Leu Thr Asp Ile Arg Arg
275 280 285

SEQLIST_PP019737.0004.txt

Ala Ala Leu Gly Glu Phe Glu Ser Leu Pro Val Ser Gly Glu Tyr Ile
 290 295 300
 His Arg His Ala Phe Asp Ile Ala Asp Val Tyr Gly Lys Asp Thr Phe
 305 310 315 320
 Tyr Val Ile Lys Lys Phe Gly Thr His Gln Leu Pro Lys Leu Phe Asp
 325 330 335
 Leu Lys Ala Arg Val Asp Arg Phe Gly Lys Lys Val Ser Phe Leu Pro
 340 345 350
 Lys His Phe Ser Asp Lys Ala Met Gln Phe Val Ser Lys Phe Leu Pro
 355 360 365
 Asp His Leu Pro Lys Ser Met Arg Asp Tyr Arg Asp Lys Tyr Glu His
 370 375 380
 His Leu Ile Leu Lys Met Gly Gly Lys Gly Val Asp Glu Ala Arg Ala
 385 390 395 400
 Phe Leu Lys Glu Tyr Phe Ala His His Gly Gly Ala Phe Phe Glu Cys
 405 410 415
 Asn Ala Glu Glu Thr Gln Ala Ala Met Leu His Arg Phe Ala Val Ala
 420 425 430
 Ser Ala Ala Ile Arg Tyr Arg Ala Val His Asp Asp Glu Val Glu Asp
 435 440 445
 Leu Val Ala Leu Asp Ile Ala Leu Arg Arg Asp Asp Arg Asp Trp Phe
 450 455 460
 Glu Lys Leu Pro Pro Glu Ile Asp Asn Lys Ile Ile His Lys Leu Tyr
 465 470 475 480
 Tyr Gly His Phe Met Cys His Val Phe His Gln Asp Tyr Ile Ile Lys
 485 490 495
 Lys Gly Asn Asp Cys Met Ala Leu Glu His Glu Met Leu His Leu Leu
 500 505 510
 Asp Gln Arg Gly Ala Gln Tyr Pro Ala Glu His Asn Val Gly His Leu
 515 520 525
 Tyr Glu Ala Lys Pro Ala Leu Lys Gln Phe Tyr Arg Lys Leu Asp Pro
 530 535 540
 Thr Asn Ser Phe Asn Pro Gly Val Gly Lys Thr Ser Lys Lys Lys Asn
 545 550 555 560
 Trp Ala Glu

<210> 103
 <211> 356
 <212> PRT
 <213> Neisseria meningitidis

<400> 103
 Met Thr Lys His Ile Ala Ile Leu Arg Gly Asp Gly Ile Gly Pro Glu
 1 5 10 15

SEQLIST_PP019737.0004.txt

Ile Val Ala Glu Thr Val Arg Val Leu Asp Lys Leu Ile Ala Gln Gly
20 25 30
Leu Asp Ala Gly Tyr Glu Tyr Ala Pro Leu Gly Gly Glu Ala Tyr Asp
35 40 45
Glu Tyr Gly His Pro Tyr Pro Glu Phe Thr Gln Asn Leu Cys Arg Lys
50 55 60
Ala Asp Ala Val Leu Leu Gly Ala Val Gly Ser Pro Gln Tyr Asp Asn
65 70 75 80
Leu Asp Arg Pro Leu Arg Pro Glu Arg Gly Leu Leu Ala Ile Arg Lys
85 90 95
Asp Leu Asn Leu Phe Ala Asn Leu Arg Pro Ala Val Leu Tyr Pro Glu
100 105 110
Leu Ala Asn Ala Ser Thr Leu Lys Pro Glu Ile Val Ala Gly Leu Asp
115 120 125
Ile Leu Ile Val Arg Glu Leu Thr Gly Asp Ile Tyr Phe Gly Glu Pro
130 135 140
Arg Gly Ile Arg Val Leu Glu Asn Gly Glu Arg Glu Gly Tyr Asn Thr
145 150 155 160
Met Lys Tyr Ser Glu Ser Glu Ile Arg Arg Ile Ala His Val Ala Phe
165 170 175
Gln Ser Ala Gln Lys Arg Ser Lys Lys Val Cys Ser Val Gly Lys Ala
180 185 190
Asn Val Leu Glu Thr Thr Glu Leu Trp Arg Glu Ile Phe Glu Glu Ile
195 200 205
Gly Lys Glu Tyr Pro Asp Val Glu Leu Ser His Met Tyr Val Asp Asn
210 215 220
Ala Ala Met Gln Leu Val Arg Ala Pro Lys Gln Phe Asp Val Ile Ala
225 230 235 240
Thr Gly Asn Ile Phe Gly Asp Ile Leu Ser Asp Glu Ala Ser Met Leu
245 250 255
Thr Gly Ser Ile Gly Met Leu Pro Ser Ala Ser Leu Asp Glu Asn Gly
260 265 270
Lys Gly Leu Tyr Glu Pro Ser His Gly Ser Ala Pro Asp Ile Ala Gly
275 280 285
Gln Asn Lys Ala Asn Pro Leu Ala Thr Ile Leu Ser Leu Ala Met Leu
290 295 300
Leu Arg Tyr Ser Leu Asn Asp Glu Ala Arg Ala Gln Gln Val Glu Asn
305 310 315 320
Ala Val Gln Lys Val Leu Gln Gln Gly Leu Arg Thr Ser Asp Ile Tyr
325 330 335
Glu Glu Gly Thr Lys Leu Val Ser Cys Ser Glu Met Gly Asp Ala Val
340 345 350

Leu Ala Ala Leu
355

<210> 104
<211> 258
<212> PRT
<213> Neisseria meningitidis

<400> 104
Met Ala Ala Phe Asn Thr Gln Lys Val Leu Ser Val His His Trp Thr
1 5 10 15

Asp Ala Tyr Phe Thr Phe Thr Cys Thr Arg Asp Glu Ser Leu Arg Phe
20 25 30

Glu Asn Gly Gln Phe Val Met Val Gly Leu Met Val Asp Gly Lys Pro
35 40 45

Leu Met Arg Ala Tyr Ser Val Ala Ser Ala Asn Trp Glu Glu His Leu
50 55 60

Glu Phe Phe Ser Ile Lys Val Gln Asp Gly Pro Leu Thr Ser Arg Leu
65 70 75 80

Gln His Leu Lys Val Gly Asp Asp Val Leu Ile Ser Lys Lys Pro Thr
85 90 95

Gly Thr Leu Val Ala Gly Asp Leu Asn Pro Gly Lys His Leu Tyr Leu
100 105 110

Leu Ser Thr Gly Thr Gly Ile Ala Pro Phe Leu Ser Ile Thr Lys Asp
115 120 125

Pro Glu Ile Tyr Glu Gln Phe Glu Lys Ile Ile Leu Val His Gly Val
130 135 140

Arg Tyr Lys Lys Asp Leu Ala Tyr Tyr Asp Arg Phe Thr Lys Glu Leu
145 150 155 160

Pro Glu His Glu Tyr Leu Gly Asp Leu Val Lys Glu Lys Leu Ile Tyr
165 170 175

Tyr Pro Ile Val Ser Arg Glu Glu Phe Glu His His Gly Arg Leu Thr
180 185 190

Asp Leu Met Val Ser Gly Lys Leu Phe Glu Asp Ile Gly Leu Pro Lys
195 200 205

Ile Asn Pro Gln Asp Asp Arg Ala Met Leu Cys Gly Ser Pro Ala Met
210 215 220

Leu Lys Asp Thr Cys Lys Val Leu Asp Asp Phe Gly Leu Thr Val Ser
225 230 235 240

Pro Lys Thr Gly Val Arg Gly Asp Tyr Leu Ile Glu Arg Ala Phe Val
245 250 255

Asp Gln

<210> 105
<211> 469
<212> PRT

<213> Neisseria meningitidis

<400> 105

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Met Lys Tyr Ile Ser Thr Arg Gly Glu Thr Ala His Lys Pro Phe Ser
1      5      10      15
Glu Val Leu Leu Met Gly Leu Ala Pro Asp Gly Gly Leu Met Leu Pro
      20      25      30
Glu His Tyr Pro Gln Ile Gly Arg Glu Thr Leu Asp Lys Trp Arg Gly
      35      40      45
Leu Ala Tyr Pro Glu Leu Ala Phe Glu Ile Met Arg Leu Phe Val Thr
      50      55      60
Asp Ile Pro Glu Asp Asp Leu Arg Asp Ile Leu Asn Arg Thr Tyr Thr
      65      70      75      80
Glu Ala Ala Phe Gly Thr Lys Glu Ile Thr Pro Val Arg Thr Leu Ser
      85      90      95
Asp Gly Ile Lys Ile Gln Ala Leu Ser Asn Gly Pro Thr Leu Ala Phe
      100      105      110
Lys Asp Met Ala Met Gln Phe Leu Gly Asn Ala Phe Glu Tyr Val Leu
      115      120      125
Asn Lys Glu Gly Lys Lys Leu Asn Ile Leu Gly Ala Thr Ser Gly Asp
      130      135      140
Thr Gly Ser Ala Ala Glu Tyr Ala Leu Arg Gly Lys Lys Gly Val Asn
      145      150      155      160
Val Phe Met Leu Ser Pro Asp Gly Lys Met Ser Ala Phe Gln Arg Ala
      165      170      175
Gln Met Tyr Ser Leu Gln Asp Glu Asn Ile His Asn Ile Ala Val Lys
      180      185      190
Gly Met Phe Asp Asp Cys Gln Asp Ile Val Lys Ala Val Gln Asn Asp
      195      200      205
Ala Ala Phe Lys Glu Lys Tyr His Ile Gly Thr Val Asn Ser Ile Asn
      210      215      220
Trp Gly Arg Ile Val Ala Gln Val Val Tyr Tyr Phe Ala Gly Tyr Phe
      225      230      235      240
Asn Ala Thr Ser Ser Asn Asp Glu Thr Val Ser Phe Cys Val Pro Ser
      245      250      255
Gly Asn Phe Gly Asn Val Cys Ala Gly His Ile Ala Lys Gln Met Gly
      260      265      270
Leu Pro Ile Arg Arg Leu Ile Val Ala Thr Asn Glu Asn Asp Val Leu
      275      280      285
Asp Glu Phe Phe Lys Thr Gly Ala Tyr Arg Pro Arg Asn Ser Ala His
      290      295      300
Thr Tyr Val Thr Ser Ser Pro Ser Met Asp Ile Ser Lys Ala Ser Asn
      305      310      315      320

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SEQLIST_PP019737.0004.txt

Phe Glu Arg Phe Val Phe Asp Leu Met Asp Arg Asp Pro Ala Glu Ile
 325 330 335
 Asn Thr Leu Trp Ala Glu Val Ala Ala Gly Lys Gly Phe Asp Leu Arg
 340 345 350
 Phe Ala Leu Asp Lys Val Gly Gly Lys Tyr Gly Phe Thr Ser Gly Lys
 355 360 365
 Ser Thr His Ala Asp Arg Leu Ala Thr Ile Lys Gln Val Tyr Glu Gln
 370 375 380
 Asp Gln Glu Leu Ile Asp Pro His Thr Ala Asp Gly Val Lys Val Ala
 385 390 395 400
 Arg Glu Val Arg Glu Glu Gly Glu Met Val Val Cys Leu Glu Thr Ala
 405 410 415
 Leu Ala Ala Lys Phe Asp Ala Thr Ile Arg Glu Ala Val Gly Asp Ala
 420 425 430
 Ala Ile Pro Arg Pro Ala Ala Leu Glu Gly Leu Glu Asn Leu Pro Gln
 435 440 445
 Arg Val Gln Thr Val Pro Asn Ser Ala Asp Ala Val Lys Gly Ile Ile
 450 455 460
 Glu Gln Thr Leu Ala
 465

<210> 106
 <211> 272
 <212> PRT
 <213> Neisseria meningitidis

<400> 106
 Met Lys Lys Thr Val Phe Thr Cys Ala Met Ile Ala Leu Thr Gly Thr
 1 5 10 15
 Ala Ala Ala Ala Gln Glu Leu Gln Thr Ala Asn Glu Phe Thr Val His
 20 25 30
 Thr Asp Leu Ser Ser Ile Ser Ser Thr Arg Ala Phe Leu Lys Glu Lys
 35 40 45
 His Lys Ala Ala Lys His Ile Ser Val Arg Ala Asp Ile Pro Phe Asp
 50 55 60
 Ala Asn Gln Gly Ile Arg Leu Glu Ala Gly Phe Gly Arg Ser Lys Lys
 65 70 75 80
 Asn Ile Ile Asn Leu Glu Thr Asp Glu Asn Lys Leu Gly Lys Thr Lys
 85 90 95
 Asn Val Lys Leu Pro Thr Gly Val Pro Glu Asn Arg Ile Asp Leu Tyr
 100 105 110
 Thr Gly Tyr Thr Tyr Thr Gln Thr Leu Ser Asp Ser Leu Asn Phe Arg
 115 120 125
 Val Gly Ala Gly Leu Gly Phe Glu Ser Ser Lys Asp Ser Ile Lys Thr
 130 135 140

SEQLIST_PP019737.0004.txt

Thr Lys His Thr Leu His Ser Ser Arg Gln Ser Trp Leu Ala Lys Val
 145 150 155 160
 His Ala Asp Leu Leu Ser Gln Leu Gly Asn Gly Trp Tyr Ile Asn Pro
 165 170 175
 Trp Ser Glu Val Lys Phe Asp Leu Asn Ser Arg Tyr Lys Leu Asn Thr
 180 185 190
 Gly Val Thr Asn Leu Lys Lys Asp Ile Asn Gln Lys Thr Asn Gly Trp
 195 200 205
 Gly Phe Gly Leu Gly Ala Asn Ile Gly Lys Lys Leu Gly Glu Ser Ala
 210 215 220
 Ser Ile Glu Ala Gly Pro Phe Tyr Lys Gln Arg Thr Tyr Lys Glu Ser
 225 230 235 240
 Gly Glu Phe Ser Val Thr Thr Lys Ser Gly Asp Val Ser Leu Thr Ile
 245 250 255
 Pro Lys Thr Ser Ile Arg Glu Tyr Gly Leu Arg Val Gly Ile Lys Phe
 260 265 270

<210> 107
 <211> 517
 <212> PRT
 <213> Neisseria meningitidis

<400> 107
 Met Thr Gln Thr Asn Arg Val Ile Ile Phe Asp Thr Thr Leu Arg Asp
 1 5 10 15
 Gly Glu Gln Ser Pro Gly Ala Ala Met Thr Lys Glu Glu Lys Ile Arg
 20 25 30
 Val Ala Arg Gln Leu Glu Lys Leu Gly Val Asp Ile Ile Glu Ala Gly
 35 40 45
 Phe Ala Ala Ala Ser Pro Gly Asp Phe Glu Ala Val Asn Ala Ile Ala
 50 55 60
 Lys Thr Ile Thr Lys Ser Thr Val Cys Ser Leu Ser Arg Ala Ile Glu
 65 70 75 80
 Arg Asp Ile Arg Gln Ala Gly Glu Ala Val Ala Pro Ala Pro Lys Lys
 85 90 95
 Arg Ile His Thr Phe Ile Ala Thr Ser Pro Ile His Met Glu Tyr Lys
 100 105 110
 Leu Lys Met Lys Pro Lys Gln Val Ile Glu Ala Ala Val Lys Ala Val
 115 120 125
 Lys Ile Ala Arg Glu Tyr Thr Asp Asp Val Glu Phe Ser Cys Glu Asp
 130 135 140
 Ala Leu Arg Ser Glu Ile Asp Phe Leu Ala Glu Ile Cys Gly Ala Val
 145 150 155 160
 Ile Glu Ala Gly Ala Thr Thr Ile Asn Ile Pro Asp Thr Val Gly Tyr
 165 170 175

SEQLIST_PP019737.0004.txt

Ser Ile Pro Tyr Lys Thr Glu Glu Phe Phe Arg Glu Leu Ile Ala Lys
180 185 190

Thr Pro Asn Gly Gly Lys Val Val Trp Ser Ala His Cys His Asn Asp
195 200 205

Leu Gly Leu Ala Val Ala Asn Ser Leu Ala Ala Leu Lys Gly Gly Ala
210 215 220

Arg Gln Val Glu Cys Thr Val Asn Gly Leu Gly Glu Arg Ala Gly Asn
225 230 235 240

Ala Ser Val Glu Glu Ile Val Met Ala Leu Lys Val Arg His Asp Leu
245 250 255

Phe Gly Leu Glu Thr Gly Ile Asp Thr Thr Gln Ile Val Pro Ser Ser
260 265 270

Lys Leu Val Ser Thr Ile Thr Gly Tyr Pro Val Gln Pro Asn Lys Ala
275 280 285

Ile Val Gly Ala Asn Ala Phe Ser His Glu Ser Gly Ile His Gln Asp
290 295 300

Gly Val Leu Lys His Arg Glu Thr Tyr Glu Ile Met Ser Ala Glu Ser
305 310 315 320

Val Gly Trp Ala Thr Asn Arg Leu Ser Leu Gly Lys Leu Ser Gly Arg
325 330 335

Asn Ala Phe Lys Thr Lys Leu Ala Asp Leu Gly Ile Glu Leu Glu Ser
340 345 350

Glu Glu Ala Leu Asn Ala Ala Phe Ala Arg Phe Lys Glu Leu Ala Asp
355 360 365

Lys Lys Arg Glu Ile Phe Asp Glu Asp Leu His Ala Leu Val Ser Asp
370 375 380

Glu Met Gly Ser Met Asn Ala Glu Ser Tyr Lys Phe Ile Ser Gln Lys
385 390 395 400

Ile Ser Thr Glu Thr Gly Glu Glu Pro Arg Ala Asp Ile Val Phe Ser
405 410 415

Ile Lys Gly Glu Glu Lys Arg Ala Ser Ala Thr Gly Ser Gly Pro Val
420 425 430

Asp Ala Ile Phe Lys Ala Ile Glu Ser Val Ala Gln Ser Gly Ala Ala
435 440 445

Leu Gln Ile Tyr Ser Val Asn Ala Val Thr Gln Gly Thr Glu Ser Gln
450 455 460

Gly Glu Thr Ser Val Arg Leu Ala Arg Gly Asn Arg Val Val Asn Gly
465 470 475 480

Gln Gly Ala Asp Thr Asp Val Leu Val Ala Thr Ala Lys Ala Tyr Leu
485 490 495

Ser Ala Leu Ser Lys Leu Glu Phe Ser Ala Ala Lys Pro Lys Ala Gln
500 505 510

Gly Ser Gly Thr Ile
515

<210> 108
<211> 376
<212> PRT
<213> Neisseria meningitidis

<400> 108
Met Ile Lys Ile Ser Thr Arg Phe Asp Ala Gly Ser Val Val Val Lys
1 5 10 15
Asp Leu Thr Asp Pro Ser Asn Ile Arg Leu Ala Leu Arg Pro Asp Asn
20 25 30
Ala Ser Asp Phe Ala Gln Trp Phe Tyr Phe Arg Leu Gln Gly Ala Ala
35 40 45
Tyr Gln Asn Cys Ile Met His Phe Glu Asn Ala Ala Glu Ala Ala Tyr
50 55 60
Pro Lys Gly Trp Glu Gly Tyr Gln Ala Cys Ala Ser Tyr Asp Arg Arg
65 70 75 80
Asn Trp Phe Arg Val Pro Thr Ser Tyr Glu Asn Gly Val Leu Thr Val
85 90 95
Asn His Thr Pro Leu Ser Asn Ser Val Tyr Tyr Ala Tyr Phe Glu Pro
100 105 110
Tyr Ser Glu Glu Gln His Leu Asn Leu Leu Gly Asp Ala Gln Gly Ser
115 120 125
Gly Leu Cys Arg Ile Asp Asp Leu Gly Ser Thr Val Gln Gly Arg Asp
130 135 140
Ile Asn Leu Leu Thr Ile Gly Asn Gln Val Glu Ser Asp Leu Lys Ile
145 150 155 160
Trp Ile Thr Ala Arg Gln His Pro Gly Glu Thr Met Ala Glu Trp Phe
165 170 175
Ile Glu Gly Leu Leu Gly Arg Leu Leu Asp Pro Gln Asp Pro Thr Ala
180 185 190
Arg Ala Leu Leu Asp Arg Ala Thr Phe Tyr Ile Val Pro Asn Met Asn
195 200 205
Pro Asp Gly Ser Ala Leu Gly Asn Leu Arg Thr Asn Ala Ala Gly Ala
210 215 220
Asn Leu Asn Arg Glu Trp Glu Asn Pro Thr Val Glu Lys Ser Pro Glu
225 230 235 240
Val Phe Phe Val Arg Glu Lys Met Leu Glu Thr Gly Val Asp Leu Phe
245 250 255
Leu Asp Ile His Gly Asp Glu Gly Leu Pro Phe Val Phe Val Ala Gly
260 265 270
Thr Glu Gly Val Pro Asn Tyr Asn Pro Arg Ile Ala Ala Leu Glu Ala
275 280 285

SEQLIST_PP019737.0004.txt

Gln Phe Lys Asn Ala Leu Leu Asn Ala Ser Pro Asp Phe Gln Asp Glu
 290 295 300
 Tyr Gly Tyr Glu Lys Asp Ala Pro Gly Glu Ala Asn Met Thr Leu Ala
 305 310 315 320
 Thr Asn Trp Val Gly Asn Arg Phe Asn Cys Leu Ala Tyr Thr Leu Glu
 325 330 335
 Met Pro Phe Lys Asp Asn Ala Asn Leu Pro Asp Asp Asp Phe Gly Trp
 340 345 350
 Asn Gly Gln Arg Ser Leu Arg Leu Gly Glu Ala Ala Leu Ser Ala Ile
 355 360 365
 Leu Asn Val Ile Gly Asp Leu Arg
 370 375

<210> 109
 <211> 239
 <212> PRT
 <213> Neisseria meningitidis

<400> 109
 Met Ala Thr Leu Ser Asp Lys Thr Ile Leu Val Thr Gly Ala Ser Gln
 1 5 10 15
 Gly Leu Gly Glu Gln Val Ala Lys Ala Tyr Ala Ala Ala Gly Ala Thr
 20 25 30
 Val Ile Leu Val Ala Arg His Gln Lys Lys Leu Glu Lys Val Tyr Asp
 35 40 45
 Ala Ile Val Glu Ala Gly Tyr Pro Glu Pro Phe Ala Ile Cys Phe Asp
 50 55 60
 Leu Ile Ser Ala Glu Glu Lys Glu Phe Glu His Phe Ala Ala Thr Ile
 65 70 75 80
 Ala Glu Ala Thr Gln Gly Lys Leu Asp Gly Ile Val His Cys Ala Gly
 85 90 95
 Tyr Phe Tyr Ala Leu Ser Pro Leu Asp Phe Gln Thr Val Ala Glu Trp
 100 105 110
 Val Asn Gln Tyr Arg Ile Asn Thr Val Ala Pro Met Gly Leu Thr Arg
 115 120 125
 Ala Leu Phe Pro Leu Leu Lys Gln Ser Pro Asp Ala Ser Val Ile Phe
 130 135 140
 Val Gly Glu Ser His Gly Glu Thr Pro Lys Ala Tyr Trp Gly Gly Phe
 145 150 155 160
 Gly Ala Ser Lys Ala Ala Leu Asn Tyr Leu Cys Lys Val Ala Ala Asp
 165 170 175
 Glu Trp Glu Arg Phe Gly Asn Leu Arg Ala Asn Val Leu Val Pro Gly
 180 185 190
 Pro Ile Asn Ser Pro Gln Arg Ile Lys Ser His Pro Gly Glu Ala Lys
 195 200 205

SEQLIST_PP019737.0004.txt

Ser Glu Arg Lys Ser Tyr Gly Asp Val Leu Pro Ala Phe Val Trp Trp
210 215 220

Ala Ser Ala Glu Ser Lys Gly Arg Ser Gly Glu Ile Val Tyr Leu
225 230 235

<210> 110
<211> 620
<212> PRT
<213> Neisseria meningitidis

<400> 110
Met Ala Leu Leu Gln Ile Ser Glu Pro Gly Met Ser Ala Ala Pro His
1 5 10 15

Arg His Arg Leu Ala Ala Gly Ile Asp Leu Gly Thr Thr Asn Ser Leu
20 25 30

Val Ala Thr Val Arg Ser Gly Ser Ala Ala Cys Leu Pro Asp Ala Glu
35 40 45

Gly Arg Val Thr Leu Pro Ser Val Val Arg Tyr Leu Glu Asn Gly Gly
50 55 60

Ile Glu Val Gly Lys Thr Ala Leu Ser Ala Gln Lys Thr Asp Pro Leu
65 70 75 80

Asn Thr Val Ser Ser Ala Lys Arg Leu Ile Gly Arg Thr Leu Ala Asp
85 90 95

Leu His Gln Asn Thr His Tyr Leu Pro Tyr Arg Phe Gly Asp Asn Gln
100 105 110

Arg Val Ile Glu Leu His Thr Arg Gln Gly Val Lys Thr Pro Val Glu
115 120 125

Val Ser Ala Glu Ile Leu Lys Thr Leu Lys Ser Arg Ala Glu Glu Thr
130 135 140

Leu Gly Gly Asp Leu Val Gly Val Val Ile Thr Val Pro Ala Tyr Phe
145 150 155 160

Asp Asp Ala Gln Arg Gln Ala Thr Lys Asp Ala Ala Arg Leu Ala Gly
165 170 175

Leu Asn Val Leu Arg Leu Leu Asn Glu Pro Thr Ala Ala Ala Ile Ala
180 185 190

Tyr Gly Leu Asp Asn Ala Ser Glu Gly Thr Phe Val Val Tyr Asp Leu
195 200 205

Gly Gly Gly Thr Phe Asp Val Ser Val Leu Gln Leu Thr Lys Gly Leu
210 215 220

Phe Glu Val Lys Ala Thr Gly Gly Asn Ser Ala Leu Gly Gly Asp Asp
225 230 235 240

Phe Asp His Arg Leu Phe Cys Arg Leu Leu Glu Gln Asn Gly Leu Ser
245 250 255

Gln Leu Asn Glu Gln Asp Ser Gln Leu Leu Leu Ser Leu Val Arg Ala
260 265 270

SEQLIST_PP019737.0004.txt

Ala Lys Glu Gln Leu Thr Thr Gln Thr Glu Ala Arg Ile Gln Ala Thr
275 280 285

Leu Ser Asp Gly Met Ala Ile Asp Thr Ser Ile Ser Arg Ala Glu Phe
290 295 300

His Asn Leu Thr Gln His Leu Val Met Lys Thr Leu Glu Pro Val Thr
305 310 315 320

Gln Ala Leu Lys Asp Ala Gly Val Gly Lys Asn Glu Val Lys Gly Val
325 330 335

Ile Met Val Gly Gly Ser Thr Arg Met Leu His Val Gln Gln Ala Val
340 345 350

Ala Thr Phe Phe Gly Gln Thr Pro Leu Asn Asn Leu Asn Pro Asp Glu
355 360 365

Val Val Ala Leu Gly Ala Ala Ile Gln Ala Asn Val Leu Ala Gly Asn
370 375 380

Lys Thr Asp Gly Glu Trp Leu Leu Leu Asp Val Thr Pro Leu Ser Leu
385 390 395 400

Gly Leu Glu Thr Tyr Gly Gly Leu Ala Glu Lys Ile Ile Pro Arg Asn
405 410 415

Ser Thr Ile Pro Thr Ala Arg Ala Gln Asp Phe Thr Thr Phe Lys Asp
420 425 430

Gly Gln Thr Ala Met Thr Ile His Val Val Gln Gly Glu Arg Glu Leu
435 440 445

Val Ala Asp Cys Arg Ser Leu Ala Lys Phe Thr Leu Arg Gly Ile Pro
450 455 460

Pro Met Ala Ala Gly Ala Ala Arg Ile Arg Val Thr Phe Gln Ile Asp
465 470 475 480

Ala Asp Gly Leu Leu Ser Val Ser Ala Gln Glu Gln Ser Thr Gly Val
485 490 495

Gln Ala Gln Ile Glu Val Lys Pro Ser Tyr Gly Leu Asp Asp Asp Thr
500 505 510

Ile Thr Gln Met Leu Lys Asp Ser Met Ser Asn Ala Ala Glu Asp Met
515 520 525

Ala Ala Arg Ala Arg Ala Glu Ala Val Val Glu Ala Glu Ser Leu Thr
530 535 540

Asp Ala Val Asn Ala Ala Leu Glu Leu Asp Ser Asp Leu Leu Asp Ala
545 550 555 560

Glu Glu Leu Gln Gln Ile Arg Gln Gly Ile Ala Asp Leu Gln Gly Arg
565 570 575

Leu Lys Asp Gly Lys Ala Glu Asp Ile Arg Ala Ala Ala Ala Lys Leu
580 585 590

Gly Ser Ile Thr Asp Asn Phe Ala Ala Lys Arg Met Asn Arg Asn Ile
595 600 605

SEQLIST_PP019737.0004.txt

Gln Arg Ala Leu Thr Gly Gln Ser Val Asp Asn Ile
610 615 620

<210> 111
<211> 619
<212> PRT
<213> Neisseria meningitidis

<400> 111
Met Pro Glu Tyr Arg Ser Lys Thr Ser Thr His Gly Arg Asn Met Ala
1 5 10 15

Gly Ala Arg Ala Leu Trp Arg Ala Thr Gly Val Met Glu Thr Asp Phe
20 25 30

Gly Lys Pro Ile Ile Ala Val Ala Asn Ser Phe Thr Gln Phe Val Pro
35 40 45

Gly His Val His Leu His Asn Met Gly Gln Leu Val Ala Arg Glu Ile
50 55 60

Glu Lys Ala Gly Ala Ile Ala Lys Glu Phe Asn Thr Ile Ala Ile Asp
65 70 75 80

Asp Gly Ile Ala Met Gly His Ser Gly Met Leu Tyr Ser Leu Pro Ser
85 90 95

Arg Asp Leu Ile Ala Asp Ser Ile Glu Tyr Met Val Asn Ala His Cys
100 105 110

Ala Asp Ala Leu Val Cys Ile Ser Asn Cys Asp Lys Ile Thr Pro Gly
115 120 125

Met Leu Ile Ala Ala Met Arg Leu Asn Ile Pro Thr Ile Phe Val Ser
130 135 140

Gly Gly Pro Met Glu Ala Gly Lys Val Ile Gly Val Ala Asn Ile Gln
145 150 155 160

Pro Glu Arg Arg Leu Asp Leu Ile Asp Ala Met Ile Glu Ser Ala Asp
165 170 175

Asp Asn Val Ser Asn Arg Gln Val Glu Glu Val Glu Gln Asn Ala Cys
180 185 190

Pro Thr Cys Gly Ser Cys Ser Gly Met Phe Thr Ala Asn Ser Met Asn
195 200 205

Cys Leu Thr Glu Ala Leu Gly Leu Ser Leu Pro Gly Asn Gly Ser Tyr
210 215 220

Leu Ala Thr His Ala Gly Arg Lys Glu Leu Phe Leu Glu Ala Gly Arg
225 230 235 240

Met Ile Val Glu Ile Thr Lys Arg Tyr Tyr Glu Gln Asn Asp Glu Thr
245 250 255

Val Leu Pro Arg Ser Ile Ala Thr Lys Lys Ala Phe Glu Asn Ala Met
260 265 270

Thr Met Asp Ile Ala Met Gly Gly Ser Thr Asn Thr Ile Leu His Leu
275 280 285

SEQLIST_PP019737.0004.txt

Leu Ala Val Ala Asn Glu Ala Gly Val Asp Phe Lys Met Ala Asp Ile
 290 295 300
 Asp Arg Leu Ser Arg Val Val Pro Cys Ile Cys Lys Thr Ala Pro Asn
 305 310 315 320
 Asn His Asp Tyr Tyr Met Glu Asp Val His Arg Ala Gly Gly Ile Phe
 325 330 335
 Ala Ile Leu Lys Glu Leu Asp Lys Ala Gly Lys Leu His Thr Asp Val
 340 345 350
 His Thr Ile His Ala Pro Thr Leu Lys Asp Ala Ile Glu Gln Trp Asp
 355 360 365
 Val Thr Asn Pro Glu Asn Thr Arg Ala Ile Glu Arg Phe Lys Ala Ala
 370 375 380
 Pro Gly Gly Val Arg Thr Thr Gln Ala Phe Ser Gln Asn Arg Met Trp
 385 390 395 400
 Lys Thr Leu Asp Leu Asp Arg Glu Lys Gly Cys Ile Arg Asp Val Ala
 405 410 415
 His Ala Tyr Ser Gln Asp Gly Gly Leu Ala Val Leu Phe Gly Asn Ile
 420 425 430
 Ala Glu Arg Gly Cys Val Val Lys Thr Ala Gly Val Asp Glu Ser Ile
 435 440 445
 Leu Lys Phe Thr Gly Arg Ala Arg Val Phe Glu Ser Gln Glu Asp Ala
 450 455 460
 Val Glu Gly Ile Leu Gly Asn Gln Ile Val Ala Gly Asp Ile Val Ile
 465 470 475 480
 Ile Arg Tyr Glu Gly Pro Lys Gly Gly Pro Gly Met Gln Glu Met Leu
 485 490 495
 Tyr Pro Thr Ser Tyr Leu Lys Ser Lys Gly Leu Gly Lys Ala Cys Ala
 500 505 510
 Leu Leu Thr Asp Gly Arg Phe Ser Gly Gly Thr Ser Gly Leu Ser Ile
 515 520 525
 Gly His Ala Ser Pro Glu Ala Ala Glu Gly Gly Ala Ile Gly Leu Val
 530 535 540
 His Glu Gly Asp Thr Val Glu Ile Asp Ile Pro Asn Arg Ser Ile His
 545 550 555 560
 Leu Ala Ile Ser Asp Glu Glu Leu Ala Ala Arg Arg Ala Glu Met Glu
 565 570 575
 Ala Arg Gly Ser Lys Ala Trp Lys Pro Lys Asn Arg Asp Arg Tyr Val
 580 585 590
 Ser Ala Ala Leu Arg Ala Tyr Gly Ala Met Ala Thr Ser Ala Asp Lys
 595 600 605
 Gly Ala Val Arg Asp Val Ala Gln Ile Glu Arg
 610 615

SEQLIST_PP019737.0004.txt

<210> 112
 <211> 487
 <212> PRT
 <213> Neisseria meningitidis

<400> 112
 Met Arg Ile Val Glu Lys Ala Tyr Thr Phe Asp Asp Val Leu Leu Val
 1 5 10 15
 Pro Ala His Ser Thr Val Leu Pro Arg Asp Val Lys Leu Gln Thr Lys
 20 25 30
 Leu Thr Arg Glu Ile Thr Leu Asn Leu Pro Leu Leu Ser Ala Ala Met
 35 40 45
 Asp Thr Val Thr Glu Ala Arg Leu Ala Ile Ser Met Ala Gln Glu Gly
 50 55 60
 Gly Ile Gly Ile Ile His Lys Asn Met Pro Pro Glu Met Gln Ala Arg
 65 70 75 80
 Ala Val Ser Lys Val Lys Arg His Glu Ser Gly Val Val Lys Asp Pro
 85 90 95
 Val Thr Val Ala Pro Thr Thr Leu Ile Arg Glu Val Leu Glu Met Arg
 100 105 110
 Ala Gln Arg Lys Arg Lys Met Ser Gly Leu Pro Val Val Glu Asn Gly
 115 120 125
 Lys Val Val Gly Ile Val Thr Asn Arg Asp Leu Arg Phe Glu Asn Arg
 130 135 140
 Val Asp Leu Pro Val Ser Ala Ile Met Thr Pro Arg Glu Arg Leu Val
 145 150 155 160
 Thr Val Pro Glu Gly Thr Ser Ile Asp Glu Ala Arg Glu Leu Met His
 165 170 175
 Thr His Lys Val Glu Arg Val Leu Val Leu Asn Glu Lys Asp Glu Leu
 180 185 190
 Lys Gly Leu Ile Thr Val Lys Asp Ile Leu Lys Thr Thr Glu Phe Pro
 195 200 205
 Asn Ala Asn Lys Asp Ser Glu Gly Arg Leu Arg Val Gly Ala Ala Val
 210 215 220
 Gly Thr Gly Gly Asp Thr Glu Glu Arg Val Lys Ala Leu Val Glu Ala
 225 230 235 240
 Gly Val Asp Val Ile Val Val Asp Thr Ala His Gly His Ser Gln Gly
 245 250 255
 Val Ile Asp Arg Val Arg Trp Val Lys Glu Thr Tyr Pro His Ile Gln
 260 265 270
 Val Ile Gly Gly Asn Ile Ala Thr Ala Lys Ala Ala Leu Asp Leu Val
 275 280 285
 Ala Ala Gly Ala Asp Ala Val Lys Val Gly Ile Gly Pro Gly Ser Ile
 290 295 300

SEQLIST_PP019737.0004.txt

Cys Thr Thr Arg Ile Val Ala Gly Val Gly Val Pro Gln Leu Thr Ala
 305 310 315 320
 Ile His Asn Val Ala Glu Ala Leu Lys Gly Thr Gly Val Pro Leu Ile
 325 330 335
 Ala Asp Gly Gly Ile Arg Phe Ser Gly Asp Ile Ala Lys Ala Leu Ala
 340 345 350
 Ala Gly Ala Tyr Ser Val Met Leu Gly Gly Met Phe Ala Gly Thr Glu
 355 360 365
 Glu Ala Pro Gly Glu Ile Glu Leu Tyr Gln Gly Arg Ser Tyr Lys Ser
 370 375 380
 Tyr Arg Gly Met Gly Ser Leu Gly Ala Met Ser Gln Gly Ser Ala Asp
 385 390 395 400
 Arg Tyr Phe Gln Asp Lys Thr Asp Ser Thr Asp Lys Tyr Val Pro Glu
 405 410 415
 Gly Ile Glu Gly Arg Val Pro Tyr Lys Gly Pro Ile Val Asn Ile Ile
 420 425 430
 His Gln Leu Thr Gly Gly Leu Arg Ser Ser Met Gly Tyr Leu Gly Cys
 435 440 445
 Ala Asn Ile Ala Glu Met His Glu Lys Ala Glu Phe Val Glu Ile Thr
 450 455 460
 Ser Ala Gly Met Ser Glu Ser His Val His Asp Val Gln Ile Thr Lys
 465 470 475 480
 Glu Ala Pro Asn Tyr His Arg
 485

<210> 113
 <211> 157
 <212> PRT
 <213> Neisseria meningitidis

<400> 113
 Met Lys Gly Asp Arg Leu Val Ile Arg Glu Leu Asn Lys Asn Leu Gly
 1 5 10 15
 Leu Leu Leu Val Thr Ile Asn Gln Tyr Phe Leu His Ala Arg Ile Leu
 20 25 30
 Lys Asn Trp Gly Phe Glu Glu Leu Gly Glu His Phe Phe Lys Gln Ser
 35 40 45
 Ile Val Glu Met Lys Ala Ala Asp Asp Leu Ile Glu Arg Ile Leu Phe
 50 55 60
 Leu Glu Gly Leu Pro Asn Leu Gln Glu Leu Gly Lys Leu Leu Ile Gly
 65 70 75 80
 Glu Ser Thr Glu Glu Ile Ile Ala Cys Asp Leu Thr Lys Glu Gln Glu
 85 90 95
 Lys His Glu Ala Leu Leu Ala Ala Ile Ala Thr Ala Glu Ala Gln Gln
 100 105 110

SEQLIST_PP019737.0004.txt

Asp Tyr Val Ser Arg Asp Leu Leu Glu Lys Gln Lys Asp Thr Asn Glu
 115 120 125
 Glu His Ile Asp Trp Leu Glu Thr Gln Gln Glu Leu Ile Gly Lys Ile
 130 135 140
 Gly Leu Pro Asn Tyr Leu Gln Thr Ala Ala Gln Glu Asp
 145 150 155
 <210> 114
 <211> 435
 <212> PRT
 <213> Neisseria meningitidis
 <400> 114
 Met Lys Pro Val Asn Ile Gly Leu Leu Gly Leu Gly Thr Val Gly Gly
 1 5 10 15
 Gly Thr Ala Ala Val Leu Arg Asp Asn Ala Glu Glu Ile Ser Arg Arg
 20 25 30
 Leu Gly Arg Glu Ile Arg Ile Ser Ala Val Cys Asp Leu Ser Glu Glu
 35 40 45
 Lys Ala Arg Gln Thr Cys Pro Ser Ala Ala Phe Val Lys Asp Pro Phe
 50 55 60
 Glu Leu Val Ala Arg Glu Asp Val Asp Val Val Val Glu Leu Phe Gly
 65 70 75 80
 Gly Thr Gly Ile Ala Lys Asp Ala Val Leu Lys Ala Ile Glu Asn Gly
 85 90 95
 Lys His Ile Val Thr Ala Asn Lys Lys Leu Leu Ala Glu Tyr Gly Asn
 100 105 110
 Glu Ile Phe Pro Leu Ala Glu Lys Gln Asn Val Ile Val Gln Phe Glu
 115 120 125
 Ala Ala Val Ala Gly Gly Ile Pro Ile Ile Lys Ala Leu Arg Glu Gly
 130 135 140
 Leu Ala Ala Asn Arg Ile Lys Ser Ile Ala Gly Ile Ile Asn Gly Thr
 145 150 155 160
 Ser Asn Phe Ile Leu Ser Glu Met Arg Glu Lys Gly Ser Ala Phe Ala
 165 170 175
 Asp Val Leu Lys Glu Ala Gln Ala Leu Gly Tyr Ala Glu Ala Asp Pro
 180 185 190
 Thr Phe Asp Ile Glu Gly Asn Asp Ala Gly His Lys Ile Thr Ile Met
 195 200 205
 Ser Ala Leu Ala Phe Gly Thr Pro Met Asn Phe Ser Ala Cys Tyr Leu
 210 215 220
 Glu Gly Ile Ser Lys Leu Asp Ser Arg Asp Ile Lys Tyr Ala Glu Glu
 225 230 235 240
 Leu Gly Tyr Arg Ile Lys Leu Leu Gly Ile Thr Arg Lys Thr Gly Lys
 245 250 255

SEQLIST_PP019737.0004.txt

Gly Ile Glu Leu Arg Val His Pro Thr Leu Ile Pro Glu Ser Arg Leu
260 265 270
Leu Ala Asn Val Asn Gly Val Met Asn Ala Val Arg Val Asn Ala Asp
275 280 285
Met Val Gly Glu Thr Leu Tyr Tyr Gly Ala Gly Ala Gly Ala Leu Pro
290 295 300
Thr Ala Ser Ala Val Val Ala Asp Ile Ile Asp Ile Ala Arg Leu Val
305 310 315 320
Glu Ala Asp Thr Ala His Arg Val Pro His Leu Ala Phe Gln Pro Ala
325 330 335
Gln Val Gln Ala Gln Thr Ile Leu Pro Met Asp Glu Ile Thr Ser Ser
340 345 350
Tyr Tyr Leu Arg Val Gln Ala Lys Asp Glu Pro Gly Thr Leu Gly Gln
355 360 365
Ile Ala Ala Leu Leu Ala Gln Glu Asn Val Ser Ile Glu Ala Leu Ile
370 375 380
Gln Lys Gly Val Ile Asp Gln Thr Thr Ala Glu Ile Val Ile Leu Thr
385 390 395 400
His Ser Thr Val Glu Lys His Ile Lys Ser Ala Ile Ala Ala Ile Glu
405 410 415
Ala Leu Asp Cys Val Glu Lys Pro Ile Thr Met Ile Arg Met Glu Ser
420 425 430

Leu His Asp
435

<210> 115
<211> 820
<212> PRT
<213> Neisseria meningitidis

<400> 115
Met Thr Gln Lys Glu Lys His Phe Glu Glu Tyr Ala Ala Leu Ala Thr
1 5 10 15
Leu Pro Leu Arg Asp Val Val Val Tyr Pro His Met Val Leu Pro Leu
20 25 30
Phe Val Gly Arg Pro Lys Ser Ile Ala Ala Leu Glu Asn Ala Ile Thr
35 40 45
Arg Glu Glu Pro Val Phe Leu Leu Ala Gln Thr Asp Ala Ala Val Glu
50 55 60
Glu Pro Ile Ala Ala Asp Leu Tyr Gln Thr Gly Thr Val Ala Gln Val
65 70 75 80
Leu Gln Val Leu Lys Leu Pro Asp Gly Thr Val Lys Val Leu Val Glu
85 90 95
Gly Leu Tyr Arg Gly Arg Val Leu Thr Ile Glu Asp Thr Gly Gly Leu
100 105 110

SEQLIST_PP019737.0004.txt

Phe Val Ser His Ile Glu Thr Val Val Glu Glu Asp Thr Gly Gly Asn
 115 120 125
 Thr Asp Leu Glu Ala Val Arg Arg Thr Leu Leu Ala Gln Phe Glu Gln
 130 135 140
 Tyr Ala Lys Leu Asn Lys Lys Ile Pro Ala Glu Ile Ile Gly Ser Ile
 145 150 155 160
 Asn Gly Ile Ala Glu Asn Ser Arg Leu Thr Asp Thr Val Ala Ala His
 165 170 175
 Leu Gln Leu Lys Leu Ala Gln Arg Gln Gln Ile Leu Glu Ile Pro Glu
 180 185 190
 Ile Gly Lys Arg Met Glu Phe Leu Leu Ala Gln Leu Glu Ser Glu Leu
 195 200 205
 Asp Ile Met Gln Ala Glu Lys Arg Ile Arg Gly Arg Val Lys Arg Gln
 210 215 220
 Met Glu Lys Ser Gln Arg Glu Tyr Tyr Leu Asn Glu Gln Ile Lys Ala
 225 230 235 240
 Ile His Lys Glu Leu Gly Glu Glu Asp Glu Asn Gly Glu Leu Asp Ala
 245 250 255
 Leu Glu Ala Asp Ile Lys Lys Ala Gly Met Thr Lys Glu Ala Glu Glu
 260 265 270
 Lys Cys Leu Ser Glu Leu Lys Lys Leu Lys Met Met Pro Pro Met Ser
 275 280 285
 Ala Glu Ser Thr Val Val Arg Asn Tyr Ile Asp Thr Leu Leu Glu Leu
 290 295 300
 Pro Trp Lys Lys Lys Ser Arg Val Ser Lys Asp Ile Ala Lys Ala Gly
 305 310 315 320
 Leu Val Leu Asp Ala Asp His Tyr Gly Leu Glu Lys Val Lys Glu Arg
 325 330 335
 Ile Leu Glu Tyr Leu Ala Val Gln Lys Arg Met Asp Lys Leu Lys Gly
 340 345 350
 Pro Ile Leu Cys Leu Val Gly Pro Pro Gly Val Gly Lys Thr Ser Leu
 355 360 365
 Gly Glu Ser Ile Ala Lys Ala Thr Gly Arg Lys Tyr Val Arg Met Ala
 370 375 380
 Leu Gly Gly Val Arg Asp Glu Ser Glu Ile Arg Gly His Arg Arg Thr
 385 390 395 400
 Tyr Ile Gly Ser Met Pro Gly Lys Ile Leu Gln Asn Met Ala Lys Ala
 405 410 415
 Gly Val Lys Asn Pro Leu Phe Leu Leu Asp Glu Ile Asp Lys Leu Gly
 420 425 430
 Asn Asp Phe Arg Gly Asp Pro Ala Ser Ala Leu Leu Glu Val Leu Asp
 435 440 445

SEQLIST_PP019737.0004.txt

Pro Glu Gln Asn Asn Lys Phe Ala Asp His Tyr Ala Glu Val Asp Tyr
 450 455 460
 Asp Leu Ser Asp Val Met Phe Ile Ala Thr Ser Asn Ser Leu Asn Ile
 465 470 475 480
 Pro Thr Pro Leu Leu Asp Arg Met Glu Ile Ile Arg Leu Ser Gly Tyr
 485 490 495
 Thr Glu Asp Glu Lys Ile Asn Ile Ala Met Gln Tyr Leu Val Pro Lys
 500 505 510
 Gln Met Lys Arg Asn Gly Val Lys Glu Gly Glu Leu Ala Ile Glu Glu
 515 520 525
 Ser Ala Val Arg Asp Ile Ile Arg Tyr Tyr Thr Arg Glu Ala Gly Val
 530 535 540
 Arg Ser Leu Asp Arg Glu Ile Ala Lys Ile Cys Arg Lys Val Val Met
 545 550 555 560
 Gln Ile Thr Leu Asp Glu Asp Lys Lys Arg Leu Ser Glu Thr Lys Lys
 565 570 575
 Thr Ser Lys Ala Lys Pro Lys Ala Val Lys Val Asn Glu Lys Asn Leu
 580 585 590
 His Asp Tyr Leu Gly Val Arg Arg Phe Asp Tyr Gly Val Ala Glu Ser
 595 600 605
 Glu Asn Arg Ile Gly Gln Val Thr Gly Leu Ala Trp Thr Glu Val Gly
 610 615 620
 Gly Glu Leu Leu Thr Val Glu Ala Ala Ala Leu Pro Gly Lys Gly Val
 625 630 635 640
 Ile Gln Cys Thr Gly Gln Leu Gly Asp Val Met Lys Glu Ser Val Ser
 645 650 655
 Ala Ala Trp Ser Val Val Arg Ser Arg Ala Glu Ser Val Gly Leu Ala
 660 665 670
 Pro Asp Phe Tyr Glu Lys Lys Asp Ile His Ile His Val Pro Glu Gly
 675 680 685
 Ala Thr Pro Lys Asp Gly Pro Ser Ala Gly Ile Ala Met Thr Leu Ala
 690 695 700
 Ala Val Ser Ala Phe Thr Lys Ile Pro Val Arg Ala Asp Val Ala Met
 705 710 715 720
 Thr Gly Glu Ile Thr Leu Arg Gly Glu Val Leu Pro Ile Gly Gly Leu
 725 730 735
 Lys Glu Lys Leu Leu Ala Ala Leu Arg Gly Gly Ile Lys His Val Leu
 740 745 750
 Ile Pro Lys Asp Asn Val Lys Asp Leu Glu Glu Ile Pro Glu Asn Val
 755 760 765
 Lys Thr Gly Leu Thr Ile His Pro Val Lys Trp Ile Asp Glu Val Leu
 770 775 780

SEQLIST_PP019737.0004.txt

Ala Leu Gly Leu Glu Ser Gln Pro Glu Pro Trp Ala Glu Pro Ser Gly
785 790 795 800

Ala Glu Ala Ala Ala Glu Ser Ala Ser Lys Pro Lys Pro Arg Ser Arg
805 810 815

Ala Thr Lys His
820

<210> 116
<211> 542
<212> PRT
<213> Neisseria meningitidis

<400> 116
Met Ile Ser Thr Asn Gly Ile Thr Met Gln Phe Gly Ala Lys Pro Leu
1 5 10 15

Phe Glu Asn Val Ser Val Lys Phe Gly Glu Gly Asn Arg Tyr Gly Leu
20 25 30

Ile Gly Ala Asn Gly Ser Gly Lys Ser Thr Phe Met Lys Ile Leu Gly
35 40 45

Gly Asp Leu Glu Gln Thr Ala Gly Glu Val Ala Ile Glu Asn Gly Val
50 55 60

Arg Leu Gly Lys Leu Arg Gln Asp Gln Phe Ala Tyr Glu Asp Met Arg
65 70 75 80

Val Leu Asp Val Val Met Met Gly His Thr Glu Met Trp Ala Ala Met
85 90 95

Thr Glu Arg Asp Ala Ile Tyr Ala Asn Pro Glu Ala Thr Glu Asp Asp
100 105 110

Tyr Met Lys Ala Ala Glu Leu Glu Ala Lys Phe Ala Glu Tyr Asp Gly
115 120 125

Tyr Thr Ala Glu Ala Arg Ala Ala Glu Leu Leu Ser Gly Val Gly Ile
130 135 140

Ser Glu Asp Leu His Asn Ala Lys Met Ala Glu Val Ala Pro Gly Phe
145 150 155 160

Lys Leu Arg Val Leu Leu Ala Gln Ala Leu Phe Ser Lys Pro Asp Val
165 170 175

Leu Leu Leu Asp Glu Pro Thr Asn Asn Leu Asp Ile Asn Thr Ile Arg
180 185 190

Trp Leu Glu Gly Val Leu Asn Gln Tyr Asp Ser Thr Met Ile Ile Ile
195 200 205

Ser His Asp Arg His Phe Leu Asn Glu Val Cys Thr His Met Ala Asp
210 215 220

Leu Asp Tyr Asn Thr Ile Thr Ile Tyr Pro Gly Asn Tyr Asp Asp Tyr
225 230 235 240

Met Leu Ala Ser Ala Gln Ser Arg Glu Arg Ala Leu Lys Asp Asn Ala
245 250 255

SEQLIST_PP019737.0004.txt

Lys Ala Lys Glu Lys Leu Gln Glu Leu Gln Glu Phe Val Ala Arg Phe
 260 265 270
 Ser Ala Asn Lys Ser Lys Ala Arg Gln Ala Thr Ser Arg Leu Lys Gln
 275 280 285
 Ala Asp Lys Ile Lys Ser Glu Met Val Glu Val Lys Pro Ser Thr Arg
 290 295 300
 Gln Asn Pro Tyr Ile Arg Phe Glu Ala Asp Glu Lys Ala Lys Leu His
 305 310 315 320
 Arg Gln Ala Val Glu Val Glu Lys Leu Ala Lys Arg Phe Glu Thr Gln
 325 330 335
 Leu Phe Lys Asn Leu Asn Phe Ile Leu Glu Ala Gly Gln Arg Leu Ala
 340 345 350
 Ile Ile Gly Pro Asn Gly Ala Gly Lys Ser Thr Leu Leu Lys Leu Leu
 355 360 365
 Ala Gly Ala Tyr Asn Pro Glu Tyr Ser Asp Gly Leu Leu Pro Asp Glu
 370 375 380
 Gly Thr Ile Lys Trp Ala Glu Lys Ala Ser Val Gly Tyr Tyr Pro Gln
 385 390 395 400
 Asp His Glu Asn Asp Phe Asp Val Asp Met Asp Leu Ser Glu Trp Met
 405 410 415
 Arg Gln Trp Gly Gln Glu Gly Asp Asp Glu Gln Val Ile Arg Gly Thr
 420 425 430
 Leu Gly Arg Leu Leu Phe Gly Ser Asn Asp Val Val Lys Lys Val Lys
 435 440 445
 Val Leu Ser Gly Gly Glu Lys Gly Arg Met Leu Tyr Gly Lys Leu Leu
 450 455 460
 Leu Leu Lys Pro Asn Val Leu Val Met Asp Glu Pro Thr Asn His Met
 465 470 475 480
 Asp Met Glu Ser Ile Glu Ser Leu Asn Met Ala Leu Glu Lys Tyr Asn
 485 490 495
 Gly Thr Leu Ile Phe Val Ser His Asp Arg Gln Phe Val Ser Ser Leu
 500 505 510
 Ala Thr Gln Ile Ile Glu Leu Asp Gly Lys Gly Gly Tyr Glu His Tyr
 515 520 525
 Leu Gly Asp Tyr Glu Ser Tyr Leu Glu Lys Lys Gly Val Ala
 530 535 540

<210> 117

<211> 344

<212> PRT

<213> Neisseria meningitidis

<400> 117

Met Ser Thr Ser Leu Ser Tyr Arg Asp Ala Gly Val Asp Ile Asp Ala
 1 5 10 15

SEQLIST_PP019737.0004.txt

Gly Asp Gln Leu Val Glu Asn Ile Lys Pro Phe Ala Lys Arg Thr Met
 20 25 30
 Arg Pro Glu Val Leu Gly Asp Leu Gly Gly Phe Gly Ala Leu Val Glu
 35 40 45
 Ile Gly Lys Lys Tyr Gln Asn Pro Val Leu Val Ser Gly Thr Asp Gly
 50 55 60
 Val Gly Thr Lys Leu Lys Leu Ala Phe Asp Trp Asp Lys His Asp Thr
 65 70 75 80
 Val Gly Ile Asp Leu Val Ala Met Ser Val Asn Asp Ile Leu Val Gln
 85 90 95
 Gly Ala Glu Pro Leu Phe Phe Leu Asp Tyr Phe Ala Cys Gly Lys Leu
 100 105 110
 Asp Val Pro Arg Ala Thr Asp Val Ile Lys Gly Ile Ala Gln Gly Cys
 115 120 125
 Glu Glu Ser Gly Cys Ala Leu Ile Gly Gly Glu Thr Ala Glu Met Pro
 130 135 140
 Gly Met Tyr Pro Val Gly Glu Tyr Asp Leu Ala Gly Phe Ala Val Gly
 145 150 155 160
 Val Val Glu Lys Glu Asn Val Ile Thr Gly Arg Ser Ile Gly Val Gly
 165 170 175
 Asp Val Val Leu Gly Leu Ala Ser Asn Gly Ala His Ser Asn Gly Tyr
 180 185 190
 Ser Leu Ile Arg Lys Ile Ile Glu Arg Asp Asn Pro Asp Leu Asp Ala
 195 200 205
 Glu Phe Asp Asn Gly Lys Thr Leu Arg Glu Ala Val Ile Ala Pro Thr
 210 215 220
 Arg Leu Tyr Val Lys Pro Ile Leu Ala Ala Leu Glu Lys Phe Thr Ile
 225 230 235 240
 Lys Gly Met Ala His Ile Thr Gly Gly Gly Ile Thr Glu Asn Val Pro
 245 250 255
 Arg Val Leu Pro Glu Asn Thr Val Ala Gln Ile Asp Ala Lys Ser Trp
 260 265 270
 Glu Leu Pro Lys Leu Phe Gln Trp Leu Gln Lys Ala Gly Asn Val Glu
 275 280 285
 Thr Gln Glu Met Tyr Arg Thr Phe Asn Cys Gly Ile Gly Met Val Val
 290 295 300
 Ile Val Ala Ala Glu Asp Ala Asp Ala Val Gln Gly Leu Leu Gly Glu
 305 310 315 320
 Gln Gly Glu Thr Val Tyr Arg Leu Gly Leu Ile Arg Glu Arg Gln Gly
 325 330 335
 Asp Glu His Gln Thr Gln Val Ala
 340

SEQLIST_PP019737.0004.txt

<210> 118
 <211> 561
 <212> PRT
 <213> Neisseria meningitidis

<400> 118
 Met Ser Met Glu Asn Phe Ala Gln Leu Leu Glu Glu Ser Phe Thr Leu
 1 5 10 15
 Gln Glu Met Asn Pro Gly Glu Val Ile Thr Ala Glu Val Val Ala Ile
 20 25 30
 Asp Gln Asn Phe Val Thr Val Asn Ala Gly Leu Lys Ser Glu Ser Leu
 35 40 45
 Ile Asp Val Ala Glu Phe Lys Asn Ala Gln Gly Glu Ile Glu Val Lys
 50 55 60
 Val Gly Asp Phe Val Thr Val Thr Ile Glu Ser Val Glu Asn Gly Phe
 65 70 75 80
 Gly Glu Thr Lys Leu Ser Arg Glu Lys Ala Lys Arg Ala Ala Asp Trp
 85 90 95
 Ile Ala Leu Glu Glu Ala Met Glu Asn Gly Asp Ile Leu Ser Gly Ile
 100 105 110
 Ile Asn Gly Lys Val Lys Gly Gly Leu Thr Val Met Ile Ser Ser Ile
 115 120 125
 Arg Ala Phe Leu Pro Gly Ser Leu Val Asp Val Arg Pro Val Lys Asp
 130 135 140
 Thr Ser His Phe Glu Gly Lys Glu Ile Glu Phe Lys Val Ile Lys Leu
 145 150 155 160
 Asp Lys Lys Arg Asn Asn Val Val Val Ser Arg Arg Ala Val Leu Glu
 165 170 175
 Ala Thr Leu Gly Glu Glu Arg Lys Ala Leu Leu Glu Asn Leu Gln Glu
 180 185 190
 Gly Ser Val Ile Lys Gly Ile Val Lys Asn Ile Thr Asp Tyr Gly Ala
 195 200 205
 Phe Val Asp Leu Gly Gly Ile Asp Gly Leu Leu His Ile Thr Asp Leu
 210 215 220
 Ala Trp Arg Arg Val Lys His Pro Ser Glu Val Leu Glu Val Gly Gln
 225 230 235 240
 Glu Val Glu Ala Lys Val Leu Lys Phe Asp Gln Glu Lys Gln Arg Val
 245 250 255
 Ser Leu Gly Met Lys Gln Leu Gly Glu Asp Pro Trp Ser Gly Leu Thr
 260 265 270
 Arg Arg Tyr Pro Gln Gly Thr Arg Leu Phe Gly Lys Val Ser Asn Leu
 275 280 285
 Thr Asp Tyr Gly Ala Phe Val Glu Ile Glu Gln Gly Ile Glu Gly Leu
 290 295 300

SEQLIST_PP019737.0004.txt

Val His Val Ser Glu Met Asp Trp Thr Asn Lys Asn Val His Pro Ser
305 310 315 320
Lys Val Val Gln Leu Gly Asp Glu Val Glu Val Met Ile Leu Glu Ile
325 330 335
Asp Glu Gly Arg Arg Arg Ile Ser Leu Gly Met Lys Gln Cys Gln Ala
340 345 350
Asn Pro Trp Glu Glu Phe Ala Ala Asn His Asn Lys Gly Asp Lys Ile
355 360 365
Ser Gly Ala Val Lys Ser Ile Thr Asp Phe Gly Val Phe Val Gly Leu
370 375 380
Pro Gly Gly Ile Asp Gly Leu Val His Leu Ser Asp Leu Ser Trp Thr
385 390 395 400
Glu Ser Gly Glu Glu Ala Val Arg Lys Tyr Lys Lys Gly Glu Glu Val
405 410 415
Glu Ala Val Val Leu Ala Ile Asp Val Glu Lys Glu Arg Ile Ser Leu
420 425 430
Gly Ile Lys Gln Leu Glu Gly Asp Pro Phe Gly Asn Phe Ile Ser Val
435 440 445
Asn Asp Lys Gly Ser Leu Val Lys Gly Ser Val Lys Ser Val Asp Ala
450 455 460
Lys Gly Ala Val Ile Ala Leu Ser Asp Glu Val Glu Gly Tyr Leu Pro
465 470 475 480
Ala Ser Glu Phe Ala Ala Asp Arg Val Glu Asp Leu Thr Thr Lys Leu
485 490 495
Lys Glu Gly Asp Glu Val Glu Ala Val Ile Val Thr Val Asp Arg Lys
500 505 510
Asn Arg Ser Ile Lys Leu Ser Val Lys Ala Lys Asp Ala Lys Glu Ser
515 520 525
Arg Glu Ala Leu Asn Ser Val Asn Ala Ala Ala Asn Ala Asn Ala Gly
530 535 540
Thr Thr Ser Leu Gly Asp Leu Leu Lys Ala Lys Leu Ser Gly Glu Gln
545 550 555 560

Glu

<210> 119
<211> 104
<212> PRT
<213> Neisseria meningitidis

<400> 119
Met Thr Lys Ser Glu Leu Met Val Arg Leu Ala Glu Val Phe Ala Ala
1 5 10 15

Lys Asn Gly Thr His Leu Leu Ala Lys Asp Val Glu Tyr Ser Val Lys
20 25 30

SEQLIST_PP019737.0004.txt

Val Leu Val Asp Thr Met Thr Arg Ser Leu Ala Arg Gly Gln Arg Ile
35 40 45
Glu Ile Arg Gly Phe Gly Ser Phe Asp Leu Asn His Arg Pro Ala Arg
50 55 60
Ile Gly Arg Asn Pro Lys Thr Gly Glu Arg Val Glu Val Pro Glu Lys
65 70 75 80
His Val Pro His Phe Lys Pro Gly Lys Glu Leu Arg Glu Arg Val Asp
85 90 95
Leu Ala Leu Lys Glu Asn Ala Asn
100

<210> 120
<211> 437
<212> PRT
<213> Neisseria meningitidis

<400> 120
Met Met Ser Val Thr Val Glu Thr Leu Glu Asn Leu Glu Arg Lys Val
1 5 10 15
Val Leu Ser Leu Pro Trp Ser Glu Ile Asn Ala Glu Thr Asp Lys Lys
20 25 30
Leu Lys Gln Thr Gln Arg Arg Ala Lys Ile Asp Gly Phe Arg Pro Gly
35 40 45
Lys Ala Pro Leu Lys Met Ile Ala Gln Met Tyr Gly Ala Ser Ala Gln
50 55 60
Asn Asp Val Ile Asn Glu Leu Val Gln Arg Arg Phe Tyr Asp Val Ala
65 70 75 80
Val Ala Gln Glu Leu Lys Val Ala Gly Phe Pro Arg Phe Glu Gly Val
85 90 95
Glu Glu Gln Asp Asp Lys Glu Ser Phe Lys Val Ala Ala Ile Phe Glu
100 105 110
Val Phe Pro Glu Val Val Ile Gly Asp Leu Ser Ala Gln Glu Val Glu
115 120 125
Lys Val Thr Ala Ser Val Gly Asp Ala Glu Val Asp Gln Thr Val Glu
130 135 140
Ile Leu Arg Lys Gln Arg Thr Arg Phe Asn His Val Glu Arg Glu Ala
145 150 155 160
Arg Asn Gly Asp Arg Val Ile Ile Asp Phe Glu Gly Lys Ile Asp Gly
165 170 175
Glu Pro Phe Ala Gly Gly Ala Ser Lys Asn Tyr Ala Phe Val Leu Gly
180 185 190
Ala Ser Gln Met Leu Pro Glu Phe Glu Ala Gly Val Val Gly Met Lys
195 200 205
Ala Gly Glu Ser Lys Asp Val Thr Val Asn Phe Pro Glu Asp Tyr His
210 215 220

SEQLIST_PP019737.0004.txt

Gly Lys Asp Val Ala Gly Lys Thr Ala Val Phe Thr Ile Thr Leu Asn
 225 230 235 240
 Asn Val Ser Glu Ala Thr Leu Pro Glu Val Asp Ala Asp Phe Ala Lys
 245 250 255
 Ala Leu Gly Ile Ala Asp Gly Asp Val Ala Lys Met Arg Glu Glu Val
 260 265 270
 Gln Lys Asn Val Ser Arg Glu Val Glu Arg Arg Val Asn Glu Gln Thr
 275 280 285
 Lys Glu Ser Val Met Asn Ala Leu Leu Lys Ala Val Glu Leu Lys Ala
 290 295 300
 Pro Val Ala Leu Val Asn Glu Glu Ala Ala Arg Leu Ala Asn Glu Met
 305 310 315 320
 Lys Gln Asn Phe Val Asn Gln Gly Met Ala Asp Ala Ala Asn Leu Asp
 325 330 335
 Leu Pro Leu Asp Met Phe Lys Glu Gln Ala Glu Arg Arg Val Ser Leu
 340 345 350
 Gly Leu Ile Leu Ala Lys Leu Val Asp Glu Asn Lys Leu Glu Pro Thr
 355 360 365
 Glu Glu Gln Ile Lys Ala Val Val Ala Asn Phe Ala Glu Ser Tyr Glu
 370 375 380
 Asp Pro Gln Glu Val Ile Asp Trp Tyr Tyr Ala Asp Pro Ser Arg Leu
 385 390 395 400
 Gln Ala Pro Thr Ser Leu Ala Val Glu Ser Asn Val Val Asp Phe Val
 405 410 415
 Leu Gly Lys Ala Lys Val Asn Glu Lys Ala Leu Ser Phe Asp Glu Val
 420 425 430
 Met Gly Ala Gln Ala
 435

<210> 121
 <211> 150
 <212> PRT
 <213> Neisseria meningitidis

<400> 121
 Met Gln Ile Ile Leu Leu Glu Lys Ile Gly Gly Leu Gly Asn Leu Gly
 1 5 10 15
 Asp Ile Val Thr Val Lys Asn Gly Tyr Ala Arg Asn Phe Leu Ile Pro
 20 25 30
 Ala Gly Lys Ala Lys Arg Ala Thr Glu Ala Asn Met Lys Glu Phe Glu
 35 40 45
 Ala Arg Arg Ala Glu Leu Glu Ala Lys Gln Ala Glu Ile Leu Ala Asp
 50 55 60
 Ala Arg Val Arg Gln Glu Lys Leu Asp Gly Gln Thr Val Thr Val Ala
 65 70 75 80

SEQLIST_PP019737.0004.txt

Gln Lys Ala Gly Val Asp Gly Arg Leu Phe Gly Ser Val Thr Asn Ala
85 90 95
Asp Ile Ala Ala Ala Ile Val Ala Ala Gly Ile Glu Ala Val Lys Ala
100 105 110
Asn Val Arg Leu Pro Asn Gly Pro Leu Lys Ala Val Gly Glu Tyr Glu
115 120 125
Val Glu Val Ala Leu His Thr Asp Ala Val Ala Lys Ile Thr Val Ala
130 135 140
Val Val Ala Ala Thr Glu
145 150

<210> 122
<211> 122
<212> PRT
<213> Neisseria meningitidis

<400> 122
Met Arg His Tyr Glu Ile Val Phe Ile Val His Pro Asp Gln Ser Glu
1 5 10 15
Gln Val Pro Ala Met Val Glu Arg Tyr Lys Thr Met Ile Ala Glu Ala
20 25 30
Asn Gly Lys Ile His Arg Leu Glu Asp Trp Gly Arg Arg Gln Leu Ala
35 40 45
Tyr Pro Ile Asn Lys Ile His Lys Ala His Tyr Val Leu Met Asn Ile
50 55 60
Glu Thr Thr Pro Glu Val Val Glu Glu Leu Glu Thr Ala Phe Arg Phe
65 70 75 80
Asn Asp Ala Ile Leu Arg His Leu Thr Ile Lys Thr Lys His Ala Val
85 90 95
Thr Glu Ala Ser Pro Met Leu Gly Gly Glu Lys Ala Lys Asn Leu Leu
100 105 110
Ser Gly Ala Ser Glu Glu Ala Val Ala Gln
115 120

<210> 123
<211> 316
<212> PRT
<213> Neisseria meningitidis

<400> 123
Met Ser Gln His Arg Lys Leu Ile Ile Leu Gly Ser Gly Pro Ala Gly
1 5 10 15
Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Asn Pro Val Ile
20 25 30
Ile Thr Gly Ile Ala Gln Gly Gly Gln Leu Met Thr Thr Thr Glu Val
35 40 45
Asp Asn Trp Pro Ala Asp Ala Asp Gly Val Gln Gly Pro Glu Leu Met
50 55 60

SEQLIST_PP019737.0004.txt

Ala Arg Phe Leu Ala His Ala Glu Arg Phe Gly Thr Glu Ile Ile Phe
65 70 75 80
Asp Gln Ile Asn Ala Val Asp Leu Gln Lys Arg Pro Phe Thr Leu Lys
85 90 95
Gly Asp Met Gly Glu Tyr Thr Cys Asp Ala Leu Ile Val Ala Thr Gly
100 105 110
Ala Ser Ala Lys Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe Ala Gly
115 120 125
Lys Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr Lys Asn
130 135 140
Gln Asp Val Ala Val Val Gly Gly Gly Asn Thr Ala Val Glu Glu Ala
145 150 155 160
Leu Tyr Leu Ala Asn Ile Ala Lys Thr Val Thr Leu Ile His Arg Arg
165 170 175
Ser Glu Phe Arg Ala Glu Lys Ile Met Ile Asp Lys Leu Met Lys Arg
180 185 190
Val Glu Glu Gly Lys Ile Ile Leu Lys Leu Glu Ser Asn Leu Gln Glu
195 200 205
Val Leu Gly Asp Asp Arg Gly Val Asn Gly Ala Leu Leu Lys Asn Asn
210 215 220
Asp Gly Ser Glu Gln Gln Ile Ala Val Ser Gly Ile Phe Ile Ala Ile
225 230 235 240
Gly His Lys Pro Asn Thr Asp Ile Phe Lys Gly Gln Leu Glu Met Asp
245 250 255
Glu Ala Gly Tyr Leu Lys Thr Lys Gly Gly Thr Ala Asp Asn Val Gly
260 265 270
Ala Thr Asn Ile Glu Gly Val Trp Ala Ala Gly Asp Val Lys Asp His
275 280 285
Thr Tyr Arg Gln Ala Ile Thr Ser Ala Ala Ser Gly Cys Gln Ala Ala
290 295 300
Leu Asp Ala Glu Arg Trp Leu Gly Ser Gln Asn Ile
305 310 315

<210> 124

<211> 238

<212> PRT

<213> Neisseria meningitidis

<400> 124

Met Thr Asp Thr Ala Glu Asn Gln Thr Gln Asn Asn Trp Gln Ala Gly
1 5 10 15

His Pro Arg Ser Ile Arg Ser Phe Val Leu Arg Gln Ser His Met Thr
20 25 30

Ala Ala Gln Gln Arg Ala Ile Asp Thr Leu Trp Asp Ser Phe Gly Ile
35 40 45

SEQLIST_PP019737.0004.txt

Asp Tyr Gln Ala Thr Pro Ala Asp Leu Asp Ala Arg Phe Gly Ser Ser
50 55 60
Arg Pro Lys Ile Leu Glu Ile Gly Phe Gly Met Gly Thr Ala Thr Ala
65 70 75 80
Glu Ile Ala Arg Arg Leu Pro Glu Thr Asp Phe Leu Ala Ile Asp Val
85 90 95
His Gly Pro Gly Val Gly Asn Leu Leu Lys Leu Ile Asp Glu Asn His
100 105 110
Leu Glu Asn Ile Arg Val Met Arg His Asp Ala Val Glu Val Val Glu
115 120 125
Asn Met Leu Gln Asp Gly Ser Leu Asp Gly Ile His Ile Phe Phe Pro
130 135 140
Asp Pro Trp His Lys Lys Arg His His Lys Arg Arg Leu Ile Gln Ala
145 150 155 160
Pro Phe Ile Ala Lys Leu Leu Pro Lys Leu Lys Thr Gly Gly Tyr Ile
165 170 175
His Leu Ala Thr Asp Trp Glu Glu Tyr Ala Gln Gln Met Leu Glu Val
180 185 190
Leu Ser Ser Phe Asp Ser Leu Gln Asn Thr Ala Ala Asp Tyr Ala Pro
195 200 205
Thr Pro Asp Tyr Arg Pro Glu Thr Lys Phe Glu Ala Arg Gly Lys Arg
210 215 220
Leu Gly His Gly Val Trp Asp Leu Val Phe Lys Arg Ile Gly
225 230 235

<210> 125
<211> 570
<212> PRT
<213> Neisseria meningitidis

<400> 125
Met Lys Ala Ser Gln Phe Phe Ile Ser Thr Leu Lys Glu Ala Pro Ala
1 5 10 15
Glu Ala Ala Leu Ala Ser His Lys Leu Met Ile Arg Ala Gly Leu Ile
20 25 30
Lys Ala Asn Ala Ser Gly Leu Tyr Thr Trp Met Pro Met Gly Leu Arg
35 40 45
Val Leu Arg Lys Val Glu Asn Val Val Arg Glu Glu Met Ala Arg Ala
50 55 60
Gly Ser Val Glu Leu Leu Met Pro Val Val Gln Pro Ala Glu Leu Trp
65 70 75 80
Gln Glu Ser Gly Arg Trp Glu Phe Tyr Gly Lys Glu Leu Leu Arg Leu
85 90 95
Lys Asp Arg His Asp Arg Asp Phe Cys Met Gly Pro Thr Cys Glu Glu
100 105 110

SEQLIST_PP019737.0004.txt

Val Ile Ala Asp Ile Val Arg Lys Glu Ile Asn Ser Tyr Lys Gln Leu
 115 120 125
 Pro Lys Asn Phe Tyr His Ile Gln Thr Lys Phe Arg Asp Glu Val Arg
 130 135 140
 Pro Arg Phe Gly Val Met Arg Ala Arg Glu Phe Val Met Lys Asp Ala
 145 150 155 160
 Tyr Ser Phe His Ala Asp Tyr Ala Ser Leu Gln Thr Thr Tyr Gln Asp
 165 170 175
 Met Tyr Asp Ala Tyr Cys Arg Ile Phe Thr Arg Leu Gly Leu Ala Phe
 180 185 190
 Arg Pro Val Ala Ala Asp Thr Gly Ser Ile Gly Gly Thr Gly Ser His
 195 200 205
 Glu Phe Gln Val Leu Ala Glu Ser Gly Glu Asp Val Ile Ala Tyr Ser
 210 215 220
 Asp Thr Ser Asp Tyr Ala Ala Asn Ile Glu Leu Ala Pro Thr Leu Pro
 225 230 235 240
 Leu Lys Gly Glu Arg Ala Ala Ala Gln Ala Glu Leu Val Lys Val His
 245 250 255
 Thr Pro Asn Val Lys Thr Ile Asp Ser Leu Val Asp Phe Leu Ser Ile
 260 265 270
 Pro Ile Glu Lys Thr Leu Lys Ser Ile Val Val Glu Gly Glu Asn Glu
 275 280 285
 Gly Glu Leu Ile Leu Leu Leu Leu Arg Gly Asp His Glu Phe Asn Asp
 290 295 300
 Ile Lys Ala Glu Lys Leu Ala Gly Val Lys Ser Pro Leu Thr Met Ala
 305 310 315 320
 Ser Pro Ala Ala Ile Val Glu Gln Phe Gly Ala Asn Gly Gly Ser Leu
 325 330 335
 Gly Pro Val Gly Phe Ala Gly Lys Val Tyr Ala Asp Phe Ala Thr Glu
 340 345 350
 Lys Gly Ala Asp Trp Val Ile Gly Ala Asn Glu Asp Asp Tyr His Tyr
 355 360 365
 Thr Gly Phe Asn Phe Gly Arg Asp Ala Ala Glu Pro Glu Phe Val Asp
 370 375 380
 Leu Arg Asn Val Val Glu Gly Asp Glu Ser Pro Asp Gly Gln Gly Arg
 385 390 395 400
 Leu Lys Leu Ala Arg Gly Ile Glu Val Gly His Val Phe Gln Leu Arg
 405 410 415
 Asp Lys Tyr Thr Gln Ala Met Asn Val Ser Phe Leu Asp Asn Asn Gly
 420 425 430
 Lys Ser Gln Ile Met Glu Met Gly Cys Tyr Gly Ile Gly Ile Thr Arg
 435 440 445

SEQLIST_PP019737.0004.txt

Val Val Ala Ala Ala Ile Glu Gln Asn Asn Asp Glu Lys Gly Ile Ile
 450 455 460
 Trp Thr Lys Ala Met Ala Pro Phe Glu Val Val Ile Val Pro Met Asn
 465 470 475 480
 Tyr Lys Lys Ser Asp Thr Val Arg Glu Ala Ala Asp Lys Ile Tyr Ala
 485 490 495
 Glu Leu Leu Ala Ala Gly Ala Asp Val Leu Leu Asp Asp Arg Asp Glu
 500 505 510
 Arg Ala Gly Val Leu Leu Asn Asp Ser Glu Leu Leu Gly Ile Pro His
 515 520 525
 Arg Ile Val Ile Gly Asp Arg Ala Leu Lys Glu Gly Asn Val Glu Tyr
 530 535 540
 Ala Glu Arg Arg Asp Asn Glu Ala Gln Ala Val Ala Ile Gly Glu Ile
 545 550 555 560
 Val Ala Arg Val Thr Ala Ser Leu Asn Ala
 565 570

<210> 126
 <211> 887
 <212> PRT
 <213> Neisseria meningitidis

<400> 126
 Met Ser Thr Gln Leu His Asp Val Asp Pro Ile Glu Thr Gln Glu Trp
 1 5 10 15
 Leu Asp Ala Leu Ser Ser Val Leu Glu Tyr Glu Gly Gly Glu Arg Ala
 20 25 30
 Gln Tyr Leu Leu Glu Asn Leu Val Lys Tyr Cys Arg Asp Lys Gly Val
 35 40 45
 Arg Met Pro His Gly Thr Thr Thr Pro Tyr Leu Asn Thr Val Ser Val
 50 55 60
 Glu Asn Glu Lys Gly Ile Pro Gly Asp Gln Asn Ile Glu His Arg Ile
 65 70 75 80
 Arg Ala Phe Val Arg Trp Asn Ala Ala Ala Ile Val Leu Arg Ala Gly
 85 90 95
 Lys Lys Asp Leu Glu Leu Gly Gly His Ile Ala Ser Phe Gln Ser Ala
 100 105 110
 Ala Thr Met Tyr Glu Val Gly Phe Asn His Phe Trp Lys Ala Lys Gly
 115 120 125
 Glu Gly Glu Glu Gly Asp Leu Val Phe Phe Gln Gly His Val Ala Pro
 130 135 140
 Gly Ile Tyr Ala Arg Ala Phe Val Glu Gly Arg Leu Thr Glu Asp Gln
 145 150 155 160
 Leu Asn Asn Phe Arg Gln Glu Val Asp Gly His Gly Leu Pro Ser Tyr
 165 170 175

SEQLIST_PP019737.0004.txt

Pro His Pro His Leu Leu Pro Asp Phe Trp Gln Phe Pro Thr Val Ser
180 185 190
Met Gly Leu Gly Pro Ile Met Ala Ile Tyr Gln Ala Arg Phe Leu Lys
195 200 205
Tyr Leu Glu Ser Arg Gly Leu Ala Lys Thr Lys Gly Arg Lys Val Trp
210 215 220
Cys Phe Cys Gly Asp Gly Glu Met Asp Glu Pro Glu Ser Gln Gly Ala
225 230 235 240
Ile Ala Leu Ala Ala Arg Glu Gly Leu Asp Asn Leu Ile Phe Val Ile
245 250 255
Asn Cys Asn Leu Gln Arg Leu Asp Gly Pro Val Arg Gly Asn Gly Lys
260 265 270
Ile Ile Gln Glu Leu Glu Gly Asn Phe Ala Gly Ala Gly Trp Asn Val
275 280 285
Val Lys Val Ile Trp Gly Arg Arg Trp Asp Arg Leu Leu Ala Lys Asp
290 295 300
Lys Asp Gly Ile Leu Arg Gln Arg Met Glu Glu Cys Leu Asp Gly Asp
305 310 315 320
Tyr Gln Thr Tyr Lys Ser Lys Asp Gly Ala Tyr Val Arg Glu His Phe
325 330 335
Phe Asn Thr Pro Glu Leu Lys Ala Leu Val Ala Asp Met Thr Asp Glu
340 345 350
Gln Leu Trp Ala Leu Asn Arg Gly Gly His Asp Pro Gln Lys Val Tyr
355 360 365
Asn Ala Tyr Asp Arg Ala Ala Asn His Ala Asp Gly Lys Pro Thr Val
370 375 380
Ile Leu Ala Lys Thr Ile Lys Gly Tyr Gly Met Gly Ala Ser Gly Glu
385 390 395 400
Gly Gln Asn Val Ala His Gln Ala Lys Lys Met Asp Lys Ala Ser Leu
405 410 415
Lys Gln Phe Arg Asp Arg Phe Asp Ile Pro Val Thr Asp Glu Gln Ile
420 425 430
Glu Ser Gly Asp Leu Pro Tyr Leu Thr Phe Ala Pro Asp Thr Glu Glu
435 440 445
Tyr Lys Tyr Leu His Ala Arg Arg Asp Ala Leu Gly Gly Tyr Leu Pro
450 455 460
Gln Arg Lys Pro Thr Gln Glu Val Leu Glu Val Pro Glu Leu Ser Ala
465 470 475 480
Phe Asp Ala Gln Leu Lys Ser Ser Gly Glu Arg Glu Phe Ser Thr Thr
485 490 495
Met Ala Phe Val Arg Ile Leu Ser Thr Leu Leu Lys Asp Lys Lys Ile
500 505 510

SEQLIST_PP019737.0004.txt

Gly Lys Arg Val Val Pro Ile Val Pro Asp Glu Ser Arg Thr Phe Gly
515 520

Met Glu Gly Met Phe Arg Gln Tyr Gly Ile Trp Asn Pro Lys Gly Gln
530 535 540

Gln Tyr Thr Pro Gln Asp Lys Asp Gln Leu Met Phe Tyr Lys Glu Ser
545 550 555 560

Val Asp Gly Gln Ile Leu Gln Glu Gly Ile Asn Glu Pro Gly Ala Met
565 570 575

Ala Asp Trp Ile Ala Ala Ala Thr Ser Tyr Ala Asn Ser Asn Phe Ala
580 585 590

Met Ile Pro Phe Tyr Ile Tyr Tyr Ser Met Phe Gly Phe Gln Arg Ile
595 600 605

Gly Asp Leu Ala Trp Ala Ala Gly Asp Met His Ala Arg Gly Phe Leu
610 615 620

Leu Gly Gly Thr Ala Gly Arg Thr Thr Leu Asn Gly Glu Gly Leu Gln
625 630 635 640

His Glu Asp Gly His Ser His Ile Gln Ala Asp Leu Ile Pro Asn Cys
645 650 655

Val Ser Tyr Asp Pro Thr Phe Gln Tyr Glu Val Ala Val Ile Val Gln
660 665 670

Asp Gly Leu Arg Arg Met Tyr Ala Asn Asn Glu Asp Val Phe Tyr Tyr
675 680 685

Ile Thr Leu Met Asn Glu Asn Tyr Thr His Pro Asp Met Pro Glu Gly
690 695 700

Ala Glu Gln Asp Ile Leu Lys Gly Met Tyr Leu Leu Lys Ala Gly Gly
705 710 715 720

Lys Gly Asp Lys Lys Val Gln Leu Met Gly Ser Gly Thr Ile Leu Gln
725 730 735

Glu Val Ile Ala Gly Ala Glu Leu Leu Lys Ala Asp Phe Gly Val Glu
740 745 750

Ala Asp Ile Trp Ser Cys Pro Ser Phe Asn Leu Leu His Arg Asp Ala
755 760 765

Val Glu Val Glu Arg Phe Asn Arg Leu His Pro Leu Glu Ala Glu Lys
770 775 780

Val Pro Phe Val Thr Ser Gln Leu Gln Gly His Asp Gly Pro Val Ile
785 790 795 800

Ala Ala Thr Asp Tyr Ile Arg Ser Tyr Ala Asp Arg Ile Arg Ala Tyr
805 810 815

Ile Pro Asn Asp Tyr His Val Leu Gly Thr Asp Gly Phe Gly Arg Ser
820 825 830

Asp Ser Arg Ala Asn Leu Arg Arg Phe Phe Glu Val Asp Arg Tyr Asn
835 840 845

SEQLIST_PP019737.0004.txt

Val Ala Val Ala Ala Leu Ala Ala Leu Ala Glu Gln Gly Lys Val Ser
850 855 860

Lys Glu Thr Val Gln Gln Ala Ile Glu Lys Tyr Gly Ile Lys Ala Asp
865 870 875 880

Ser Ala Pro Ser Trp Lys Arg
885

<210> 127
<211> 535
<212> PRT
<213> Neisseria meningitidis

<400> 127
Met Ser Ile Val Glu Ile Lys Val Pro Asp Ile Gly Gly His Glu Asn
1 5 10 15

Val Asp Ile Ile Ala Val Glu Val Lys Ala Gly Asp Thr Ile Ala Val
20 25 30

Asp Asp Thr Leu Ile Thr Leu Glu Thr Asp Lys Ala Thr Met Asp Val
35 40 45

Pro Ala Asp Ala Ala Gly Val Val Lys Glu Val Lys Val Lys Val Gly
50 55 60

Asp Lys Ile Ser Glu Gly Gly Val Ile Leu Thr Val Glu Thr Gly Ala
65 70 75 80

Ala Ala Ala Glu Ala Ala Pro Ala Ala Ala Glu Ala Gln Pro Ala Pro
85 90 95

Ala Ala Ala Pro Ala Ala Ala Gly Gly Ala Thr Val Gln Val Ala Val
100 105 110

Pro Asp Ile Gly Gly His Thr Asp Val Asp Val Ile Ala Val Glu Ile
115 120 125

Lys Val Gly Asp Thr Val Ala Glu Asp Asp Thr Leu Ile Thr Leu Glu
130 135 140

Thr Asp Lys Ala Thr Met Asp Val Pro Cys Thr Ala Ala Gly Val Val
145 150 155 160

Lys Ala Val Phe Leu Lys Val Gly Asp Lys Val Ser Glu Gly Ser Ala
165 170 175

Ile Ile Glu Val Glu Thr Val Gly Ser Ala Ala Ala Ala Pro Ala Gln
180 185 190

Ala Ala Gln Ala Ala Ala Pro Ala Ala Ala Pro Pro Pro Thr Ala Ala
195 200 205

Ala Ala Pro Ala Ala Ala Pro Ala Pro Ser Ala Pro Ala Ala Ala Lys
210 215 220

Ile Asp Glu Ala Ala Phe Ala Lys Ala His Ala Gly Pro Ser Ala Arg
225 230 235 240

Lys Leu Ala Arg Glu Leu Gly Val Asp Leu Gly Gln Val Lys Gly Thr
245 250 255

SEQLIST_PP019737.0004.txt

Gly Leu Lys Gly Arg Ile Met Gly Asp Asp Ile Lys Ala Phe Val Lys
260 265 270
Ser Val Met Gln Gly Gly Ala Ala Lys Pro Ala Ala Ala Ser Ala Ser
275 280 285
Leu Gly Gly Gly Leu Asp Leu Leu Pro Trp Pro Lys Val Asp Phe Ser
290 295 300
Lys Phe Gly Asn Val Glu Val Lys Glu Leu Ser Arg Ile Lys Lys Ile
305 310 315 320
Ser Gly Gln Asn Leu Ser Arg Asn Trp Val Val Ile Pro His Val Thr
325 330 335
Val His Glu Glu Ala Asp Met Thr Glu Leu Glu Glu Phe Arg Lys Gln
340 345 350
Leu Asn Lys Glu Trp Glu Arg Glu Gly Val Lys Leu Ser Pro Leu Ala
355 360 365
Phe Ile Ile Lys Ala Ser Val Ser Ala Leu Lys Ala Phe Pro Glu Phe
370 375 380
Asn Ala Ser Leu Asp Gly Asp Asn Leu Val Leu Lys Asn Tyr Phe Asn
385 390 395 400
Ile Gly Phe Ala Ala Asp Thr Pro Asn Gly Leu Val Val Pro Val Ile
405 410 415
Lys Asp Val Asp Gln Lys Gly Leu Lys Gln Ile Ser Gln Glu Leu Thr
420 425 430
Glu Leu Ser Lys Lys Ala Arg Glu Gly Lys Leu Lys Pro Gln Glu Met
435 440 445
Gln Gly Ala Cys Phe Thr Ile Ser Ser Leu Gly Gly Ile Gly Gly Thr
450 455 460
Gly Phe Thr Pro Ile Val Asn Ala Pro Glu Val Ala Ile Leu Gly Val
465 470 475 480
Cys Lys Ser Gln Ile Lys Pro Val Trp Asn Gly Lys Glu Phe Ala Pro
485 490 495
Arg Leu Met Cys Pro Leu Ser Leu Ser Phe Asp His Arg Val Ile Asp
500 505 510
Gly Ala Ala Gly Met Arg Phe Thr Val Phe Leu Ala Lys Leu Leu Lys
515 520 525
Asp Phe Arg Arg Ile Thr Leu
530 535

<210> 128
<211> 145
<212> PRT
<213> Neisseria meningitidis

<400> 128
Met Gly Asn Phe Leu Tyr Arg Gly Ile Ser Cys Gln Gln Asp Glu Gln
1 5 10 15

SEQLIST_PP019737.0004.txt

Asn Asn Gly Gln Leu Lys Pro Lys Gly Asn Lys Ala Glu Val Ala Ile
20 25 30
Arg Tyr Asp Gly Lys Phe Lys Tyr Asp Gly Lys Ala Thr His Gly Pro
35 40 45
Ser Val Lys Asn Ala Val Tyr Ala His Gln Ile Glu Thr Gly Leu Tyr
50 55 60
Asp Gly Cys Tyr Ile Ser Thr Thr Thr Asp Lys Glu Ile Ala Lys Lys
65 70 75 80
Phe Ala Thr Ser Ser Gly Ile Glu Asn Gly Tyr Ile Tyr Val Leu Asn
85 90 95
Arg Asp Leu Phe Gly Gln Tyr Ser Ile Phe Glu Tyr Glu Val Glu His
100 105 110
Pro Glu Asn Pro Asn Glu Lys Glu Val Thr Ile Arg Ala Glu Asp Cys
115 120 125
Gly Cys Ile Pro Glu Glu Val Ile Ile Ala Lys Glu Leu Ile Glu Ile
130 135 140

Asn
145

<210> 129
<211> 594
<212> PRT
<213> Neisseria meningitidis

<400> 129
Met Ala Leu Val Glu Leu Lys Val Pro Asp Ile Gly Gly His Glu Asn
1 5 10 15
Val Asp Ile Ile Ala Val Glu Val Asn Val Gly Asp Thr Ile Ala Val
20 25 30
Asp Asp Thr Leu Ile Thr Leu Glu Thr Asp Lys Ala Thr Met Asp Val
35 40 45
Pro Ala Glu Val Ala Gly Val Val Lys Glu Val Lys Val Lys Val Gly
50 55 60
Asp Lys Ile Ser Glu Gly Gly Leu Ile Val Val Val Glu Ala Glu Gly
65 70 75 80
Thr Ala Ala Ala Pro Lys Ala Glu Ala Ala Ala Ala Pro Ala Gln Glu
85 90 95
Ala Pro Lys Ala Ala Ala Pro Ala Pro Gln Ala Ala Gln Phe Gly Gly
100 105 110
Ser Ala Asp Ala Glu Tyr Asp Val Val Val Leu Gly Gly Gly Pro Gly
115 120 125
Gly Tyr Ser Ala Ala Phe Ala Ala Ala Asp Glu Gly Leu Lys Val Ala
130 135 140
Ile Val Glu Arg Tyr Lys Thr Leu Gly Gly Val Cys Leu Asn Val Gly
145 150 155 160

SEQLIST_PP019737.0004.txt

Cys Ile Pro Ser Lys Ala Leu Leu His Asn Ala Ala Val Ile Asp Glu
 165 170 175
 Val Arg His Leu Ala Ala Asn Gly Ile Lys Tyr Pro Glu Pro Glu Leu
 180 185 190
 Asp Ile Asp Met Leu Arg Ala Tyr Lys Asp Gly Val Val Ser Arg Leu
 195 200 205
 Thr Gly Gly Leu Ala Gly Met Ala Lys Ser Arg Lys Val Asp Val Ile
 210 215 220
 Gln Gly Asp Gly Gln Phe Leu Asp Pro His His Leu Glu Val Ser Leu
 225 230 235 240
 Thr Ala Gly Asp Ala Tyr Glu Gln Ala Ala Pro Thr Gly Glu Lys Lys
 245 250 255
 Ile Val Ala Phe Lys Asn Cys Ile Ile Ala Ala Gly Ser Arg Val Thr
 260 265 270
 Lys Leu Pro Phe Ile Pro Glu Asp Pro Arg Ile Ile Asp Ser Ser Gly
 275 280 285
 Ala Leu Ala Leu Lys Glu Val Pro Gly Lys Leu Leu Ile Ile Gly Gly
 290 295 300
 Gly Ile Ile Gly Leu Glu Met Gly Thr Val Tyr Ser Thr Leu Gly Ser
 305 310 315 320
 Arg Leu Asp Val Val Glu Met Met Asp Gly Leu Met Gln Gly Ala Asp
 325 330 335
 Arg Asp Leu Val Lys Val Trp Gln Lys Gln Asn Glu Tyr Arg Phe Asp
 340 345 350
 Asn Ile Met Val Asn Thr Lys Thr Val Ala Val Glu Pro Lys Glu Asp
 355 360 365
 Gly Val Tyr Val Thr Phe Glu Gly Ala Asn Ala Pro Lys Glu Pro Gln
 370 375 380
 Arg Tyr Asp Ala Val Leu Val Ala Ala Gly Arg Ala Pro Asn Gly Lys
 385 390 395 400
 Leu Ile Ser Ala Glu Lys Ala Gly Val Ala Val Thr Asp Arg Gly Phe
 405 410 415
 Ile Glu Val Asp Lys Gln Met Arg Thr Asn Val Pro His Ile Tyr Ala
 420 425 430
 Ile Gly Asp Ile Val Gly Gln Pro Met Leu Ala His Lys Ala Val His
 435 440 445
 Glu Gly His Val Ala Ala Glu Asn Cys Ala Gly His Lys Ala Tyr Phe
 450 455 460
 Asp Ala Arg Val Ile Pro Gly Val Ala Tyr Thr Ser Pro Glu Val Ala
 465 470 475 480
 Trp Val Gly Glu Thr Glu Leu Ser Ala Lys Ala Ser Gly Arg Lys Ile
 485 490 495

SEQLIST_PP019737.0004.txt

Thr Lys Ala Asn Phe Pro Trp Ala Ala Ser Gly Arg Ala Ile Ala Asn
500 505 510
Gly Cys Asp Asn Gly Phe Thr Lys Leu Ile Phe Asp Ala Glu Thr Gly
515 520 525
Arg Ile Ile Gly Gly Gly Ile Val Gly Pro Asn Gly Gly Asp Met Ile
530 535 540
Gly Glu Val Cys Leu Ala Ile Glu Met Gly Cys Asp Ala Ala Asp Ile
545 550 555 560
Gly Lys Thr Ile His Pro His Pro Thr Leu Gly Glu Ser Ile Gly Met
565 570 575
Ala Ala Glu Val Ala Leu Gly Thr Cys Thr Asp Leu Pro Pro Gln Lys
580 585 590
Lys Lys

<210> 130
<211> 261
<212> PRT
<213> Neisseria meningitidis

<400> 130
Met Asn Pro Phe Leu Asn Thr Ala Phe Lys Ala Ala Arg Arg Ala Gly
1 5 10 15
Gln Met Met Ile Arg Ala Ala Gly Asn Leu Asp Ala Val Lys Thr Asp
20 25 30
Ser Lys Ala Phe Asn Asp Phe Val Ser Asp Val Asp Arg Asn Ser Glu
35 40 45
Ile Ile Leu Val Glu Ala Leu Lys Glu Ala Tyr Pro His His Lys Ile
50 55 60
Thr Cys Glu Glu Ser Gly Ser His Gly Lys Ala Ala Ala Glu Tyr Glu
65 70 75 80
Trp Ile Ile Asp Pro Leu Asp Gly Thr Thr Asn Phe Leu His Gly His
85 90 95
Pro Gln Tyr Ala Ile Ser Met Ala Leu Leu His Lys Gly Val Leu Gln
100 105 110
Glu Ala Leu Val Tyr Ala Pro Glu Arg Asn Asp Val Tyr Met Ala Ser
115 120 125
Arg Gly Lys Gly Ala Leu Leu Asn Asp Arg Arg Ile Arg Val Ser Asn
130 135 140
Arg Ile Glu Leu Asn Arg Cys Leu Ile Gly Thr Gly Phe Pro Val Val
145 150 155 160
Asp Gln Ser Met Met Asp Lys Tyr Leu Ala Ile Leu Lys Asp Phe Leu
165 170 175
Ala Lys Thr Ala Gly Gly Arg Arg Glu Gly Ala Ala Ser Leu Asp Leu
180 185 190

SEQLIST_PP019737.0004.txt

Cys Ala Val Ala Thr Gly Arg Phe Asp Gly Phe Phe Glu Phe Asn Leu
 195 200 205
 Lys Pro Trp Asp Ile Ala Ala Gly Ala Leu Ile Val Gln Glu Ala Gly
 210 215 220
 Gly Ile Val Thr Asp Met Ser Gly Glu Asp Gly Trp Leu Glu Ser Gly
 225 230 235 240
 Asp Ile Val Ala Ala Asn Pro Lys Val Leu Ala Gln Met Leu Lys Ile
 245 250 255
 Ile Ser Ala His Val
 260

<210> 131
 <211> 481
 <212> PRT
 <213> Neisseria meningitidis

<400> 131
 Met Thr Gln Tyr Thr Leu Lys Gln Ala Ser Val Leu Leu Gln Ser Lys
 1 5 10 15
 Gln Ile Ser Ala Val Glu Leu Ala Ser Ala Tyr Leu Ala Ala Ile Ala
 20 25 30
 Glu Lys Asn Pro Ala Leu Asn Gly Tyr Ile Thr Ile Asp Gln Asp Lys
 35 40 45
 Thr Leu Ala Glu Ala Arg Ala Ala Asp Glu Arg Ile Ala Gln Gly Asn
 50 55 60
 Ala Ser Ala Leu Thr Gly Val Pro Val Ala Tyr Lys Asp Ile Phe Cys
 65 70 75 80
 Gln Thr Gly Trp Arg Ser Ala Cys Ala Ser Lys Met Leu Asp Asn Phe
 85 90 95
 Ile Ser Pro Tyr Thr Ala Thr Val Val Gln Asn Leu Leu Asp Glu Gly
 100 105 110
 Met Val Thr Leu Gly Arg Thr Asn Met Asp Glu Phe Ala Met Gly Ser
 115 120 125
 Thr Asn Glu Asn Ser Phe Tyr Gly Ala Ala Lys Asn Pro Trp Asn Leu
 130 135 140
 Glu His Val Pro Gly Gly Ser Ser Gly Gly Ser Ala Ala Val Val Ala
 145 150 155 160
 Ala Arg Leu Ala Pro Ala Ala Leu Gly Ser Asp Thr Gly Gly Ser Ile
 165 170 175
 Arg Gln Pro Ala Ser His Cys Gly Ile Thr Gly Ile Lys Pro Thr Tyr
 180 185 190
 Gly Thr Val Ser Arg Phe Gly Met Val Ala Tyr Ala Ser Ser Phe Asp
 195 200 205
 Gln Thr Gly Pro Met Ala Gln Thr Ala Glu Asp Cys Ala Ile Leu Leu
 210 215 220

SEQLIST_PP019737.0004.txt

Asn Ala Met Ala Gly Phe Asp Pro Lys Asp Ser Thr Ser Leu Glu Arg
 225 230 235 240
 Glu Lys Glu Asp Tyr Thr Arg Asp Leu Asn Gln Pro Leu Lys Gly Leu
 245 250 255
 Lys Ile Gly Leu Pro Lys Glu Tyr Phe Gly Glu Gly Asn Ser Ala Asp
 260 265 270
 Val Leu Thr Ala Leu Gln Asn Thr Ile Asp Leu Leu Lys Ala Gln Gly
 275 280 285
 Ala Glu Leu Ile Glu Val Ser Leu Pro Gln Thr Lys Leu Ser Ile Pro
 290 295 300
 Ala Tyr Tyr Val Leu Ala Ser Ala Glu Ala Ser Thr Asn Leu Ser Arg
 305 310 315 320
 Tyr Asp Gly Val Arg Tyr Gly His Arg Ala Ala Gln Phe Ala Asp Leu
 325 330 335
 Glu Glu Met Tyr Gly Lys Thr Arg Ala Glu Gly Phe Gly Ser Glu Val
 340 345 350
 Lys Arg Arg Ile Met Ile Gly Thr Tyr Val Leu Ser His Gly Tyr Tyr
 355 360 365
 Asp Ala Tyr Tyr Leu Lys Ala Gln Lys Leu Arg Arg Leu Val Ala Asp
 370 375 380
 Asp Phe Gln Thr Ala Phe Ala Arg Cys Asp Leu Ile Leu Ala Pro Thr
 385 390 395 400
 Ala Pro Thr Ala Ala Pro Lys Ile Gly Ala Asp Ala Ser Pro Val Glu
 405 410 415
 Thr Tyr Leu Ser Asp Ile Tyr Thr Ile Ala Val Asn Leu Ala Gly Leu
 420 425 430
 Pro Ala Leu Thr Leu Pro Ala Gly Phe Ser Gly Gly Gly Leu Pro Val
 435 440 445
 Gly Val Gln Leu Val Gly Asn Tyr Phe Ala Glu Ala Lys Ile Leu Gly
 450 455 460
 Ala Ala His Gln Ile Gln Leu Asn Ser Asp Trp His Gly Lys Arg Pro
 465 470 475 480
 Glu

<210> 132
 <211> 476
 <212> PRT
 <213> Neisseria meningitidis

<400> 132
 Met Thr Trp Glu Thr Val Ile Gly Leu Glu Ile His Val Gln Leu Asn
 1 5 10 15
 Thr Lys Ser Lys Ile Phe Ser Gly Ala Ser Thr Ala Phe Gly Ala Glu
 20 25 30

SEQLIST_PP019737.0004.txt

Pro Asn Ala His Ala Ser Val Val Glu Cys Ala Leu Pro Gly Val Leu
35 40 45

Pro Val Met Asn Arg Glu Val Val Glu Lys Ala Ile Lys Leu Gly Leu
50 55 60

Ala Leu Asp Ala Lys Ile Asn Gln Lys Asn Val Phe Asp Arg Lys Asn
65 70 75 80

Tyr Phe Tyr Pro Asp Leu Pro Lys Gly Tyr Gln Ile Ser Gln Leu Asp
85 90 95

Leu Pro Ile Val Glu His Gly Lys Leu Glu Ile Val Val Gly Asp Asp
100 105 110

Val Lys Thr Ile Asn Val Thr Arg Ala His Met Glu Glu Asp Ala Gly
115 120 125

Lys Ser Val His Glu Gly Leu Asn Gly Ala Thr Gly Ile Asp Leu Asn
130 135 140

Arg Ala Gly Thr Pro Leu Leu Glu Val Val Ser Glu Pro Glu Met Arg
145 150 155 160

Ser Ala Ala Glu Ala Val Ala Tyr Ala Lys Ala Leu His Ser Leu Val
165 170 175

Thr Trp Leu Asp Ile Cys Asp Gly Asn Met Ala Glu Gly Ser Phe Arg
180 185 190

Val Asp Ala Asn Val Ser Val Arg Pro Lys Gly Gln Glu Glu Phe Gly
195 200 205

Thr Arg Arg Glu Ile Lys Asn Leu Asn Ser Phe Arg Phe Leu Glu Gln
210 215 220

Ala Ile Asn Tyr Glu Ala Glu Ala Gln Ile Glu Ile Leu Glu Asp Gly
225 230 235 240

Gly Lys Val Gln Gln Ala Thr Met Leu Phe Asp Pro Glu Lys Gly Glu
245 250 255

Thr Arg Val Met Arg Leu Lys Glu Asp Ala His Asp Tyr Arg Tyr Phe
260 265 270

Pro Asp Pro Asp Leu Leu Pro Val Ile Ile Ser Asp Ala Gln Met Gln
275 280 285

Lys Ala Lys Ala Glu Met Pro Glu Leu Pro Lys Glu Met Ala Ala Arg
290 295 300

Phe Val Ala Asp Tyr Gly Val Ser Glu Tyr Asp Ala Arg Leu Leu Thr
305 310 315 320

Ala Ser Arg Ala Gln Ala Ala Tyr Phe Glu Glu Ala Ala Lys Glu Ser
325 330 335

Gly Gln Gly Lys Leu Thr Ala Asn Trp Met Asn Gly Glu Leu Ala Ala
340 345 350

Ala Leu Asn Lys Glu Gly Met Glu Leu Ala Asp Ser Pro Ile Thr Ala
355 360 365

SEQLIST_PP019737.0004.txt

Pro Arg Leu Ala Ala Leu Val Gly Lys Ile Ala Asp Gly Thr Leu Ser
 370 375 380
 Ser Lys Leu Ala Lys Lys Ala Phe Glu Ala Met Trp Ala Glu Pro Glu
 385 390 395 400
 Ala Thr Ile Ala Glu Ile Ile Glu Lys His Gly Leu Gln Gln Met Thr
 405 410 415
 Asp Thr Gly Glu Ile Glu Ala Met Val Asp Glu Val Leu Ala Asn Asn
 420 425 430
 Ala Lys Ala Val Glu Gln Phe Lys Ser Gly Asn Glu Lys Ala Leu Asn
 435 440 445
 Ala Ile Val Gly Gln Val Met Lys Ala Ser Lys Gly Lys Ala Asn Pro
 450 455 460
 Ala Gln Val Gln Glu Leu Ile Lys Ala Lys Leu Ala
 465 470 475

<210> 133
 <211> 414
 <212> PRT
 <213> Neisseria meningitidis

<400> 133
 Met Ser Asn Glu Asn Arg Thr Cys Ser Phe Cys Gly Lys Ser Lys Ser
 1 5 10 15
 His Val Lys His Leu Ile Glu Gly Glu Asn Ala Phe Ile Cys Asp Glu
 20 25 30
 Cys Val Ser Asn Cys Ile Glu Ile Leu His Glu Asp Gly Asn Asp Gly
 35 40 45
 Thr Pro Ser Glu Ser Ala Gly Gly Glu Pro Glu Glu Ser Gly Lys Leu
 50 55 60
 Pro Thr Pro Ala Glu Ile Val Ala Asn Leu Asn Asp His Val Ile Gly
 65 70 75 80
 Gln Glu Gln Ala Lys Lys Ala Leu Ala Val Ser Val Tyr Asn His Tyr
 85 90 95
 Lys Arg Leu Arg His Pro Lys Ala Gly Ala Asn Val Glu Leu Ser Lys
 100 105 110
 Ser Asn Ile Leu Leu Ile Gly Pro Thr Gly Ser Gly Lys Thr Leu Leu
 115 120 125
 Ala Gln Ser Leu Ala Arg Lys Leu Asp Val Pro Phe Val Met Ala Asp
 130 135 140
 Ala Thr Thr Leu Thr Glu Ala Gly Tyr Val Gly Glu Asp Val Glu Gln
 145 150 155 160
 Ile Ile Thr Lys Leu Leu Gly Lys Cys Asp Phe Asp Val Glu Lys Ala
 165 170 175
 Gln Arg Gly Ile Val Tyr Ile Asp Glu Ile Asp Lys Ile Ser Arg Lys
 180 185 190

SEQLIST_PP019737.0004.txt

Ser Asp Asn Pro Ser Ile Thr Arg Asp Val Ser Gly Glu Gly Val Gln
195 200 205
Gln Ala Leu Leu Lys Leu Ile Glu Gly Thr Val Ala Ser Val Pro Pro
210 215 220
Gln Gly Gly Arg Lys His Pro Asn Gln Glu Phe Ile Asn Val Asp Thr
225 230 235 240
Thr Asn Ile Leu Phe Ile Cys Gly Gly Ala Phe Ala Gly Leu Glu Lys
245 250 255
Val Ile Arg Gln Arg Thr Glu Lys Gly Gly Ile Gly Phe Gly Ala Ser
260 265 270
Val His Ser Lys Asp Glu Asn Ala Asp Ile Thr Lys Leu Phe Gly Ile
275 280 285
Val Glu Pro Glu Asp Leu Ile Lys Phe Gly Leu Ile Pro Glu Leu Ile
290 295 300
Gly Arg Leu Pro Val Ile Ala Thr Leu Glu Glu Leu Asp Glu Asp Ala
305 310 315 320
Leu Ile Asn Ile Leu Thr Glu Pro Lys Asn Ala Leu Val Lys Gln Tyr
325 330 335
Gln Ala Leu Phe Gly Met Glu Asn Val Glu Leu Glu Phe Glu Glu Gly
340 345 350
Ala Leu Arg Ser Ile Ala Arg Gln Ala Met Glu Arg Lys Thr Gly Ala
355 360 365
Arg Gly Leu Arg Ser Ile Val Glu Arg Cys Leu Leu Asp Thr Met Tyr
370 375 380
Arg Leu Pro Asp Leu Lys Gly Leu Lys Lys Val Val Val Gly Lys Ala
385 390 395 400
Val Ile Glu Glu Gly Arg Glu Pro Glu Leu Val Phe Glu Ser
405 410

<210> 134
<211> 404
<212> PRT
<213> Neisseria meningitidis

<400> 134
Met Thr Val Lys Thr Pro Val Tyr Leu Asp Tyr Ala Ala Thr Pro Pro
1 5 10 15
Val Asp Lys Arg Val Ala Glu Lys Met Ile Pro Tyr Leu Thr Glu Thr
20 25 30
Phe Gly Asn Pro Ala Ser Asn Ser His Ser Phe Gly Trp Glu Ala Glu
35 40 45
Glu Ala Val Glu Lys Ala Arg Ala Asp Ile Ala Ala Leu Ile Asn Ala
50 55 60
Asp Ser Lys Glu Ile Val Phe Thr Ser Gly Ala Thr Glu Ser Asn Asn
65 70 75 80

SEQLIST_PP019737.0004.txt

Leu Ala Ile Lys Gly Ala Ala His Phe Tyr Lys Ser Lys Gly Asn His
 85 90 95
 Leu Ile Thr Val Lys Thr Glu His Lys Ala Val Leu Asp Thr Met Arg
 100 105 110
 Glu Leu Glu Arg Gln Gly Tyr Glu Val Thr Tyr Leu Asp Val Gln Glu
 115 120 125
 Asn Gly Leu Val Asp Leu Asp Val Leu Lys Ala Ala Ile Arg Glu Asp
 130 135 140
 Thr Ile Leu Val Ser Val Met Trp Val Asn Asn Glu Ile Gly Val Val
 145 150 155 160
 Gln Asp Ile Pro Ala Ile Gly Glu Ile Cys Arg Glu Arg Lys Ile Ile
 165 170 175
 Phe His Val Asp Ala Ala Gln Ala Cys Gly Lys Val Pro Val Asp Val
 180 185 190
 Glu Ala Ala Lys Val Asp Leu Leu Ser Met Ser Gly His Lys Val Tyr
 195 200 205
 Gly Pro Lys Gly Ile Gly Ala Leu Tyr Val Arg Arg Lys Pro Arg Val
 210 215 220
 Arg Leu Glu Ala Gln Met His Gly Gly Gly His Glu Arg Gly Phe Arg
 225 230 235 240
 Ser Gly Thr Leu Pro Thr His Gln Ile Val Gly Met Gly Glu Ala Phe
 245 250 255
 Arg Ile Ala Lys Glu Glu Leu Ala Gln Asp Thr Ala His Tyr Leu Lys
 260 265 270
 Leu Arg Asp Ile Phe Leu Lys Gly Ile Glu Gly Ile Glu Glu Val Tyr
 275 280 285
 Ile Asn Gly Asp Leu Glu His Arg Val Pro Asn Asn Leu Asn Val Ser
 290 295 300
 Phe Asn Phe Val Glu Gly Glu Ser Leu Ile Met Ala Val Lys Glu Leu
 305 310 315 320
 Ala Val Ser Ser Gly Ser Ala Cys Thr Ser Ala Ser Leu Glu Pro Ser
 325 330 335
 Tyr Val Leu Arg Ala Leu Gly Arg Asn Asp Glu Leu Ala His Ser Ser
 340 345 350
 Leu Arg Ile Thr Phe Gly Arg Met Thr Thr Glu Glu Glu Val Gln Phe
 355 360 365
 Ala Ala Glu Leu Ile Lys Ser Lys Ile Gly Lys Leu Arg Glu Leu Ser
 370 375 380
 Pro Leu Trp Glu Met Phe Lys Asp Gly Ile Asp Leu Asn Ser Ile Glu
 385 390 395 400
 Trp Ala Ala His

SEQLIST_PP019737.0004.txt

<210> 135
 <211> 328
 <212> PRT
 <213> Neisseria meningitidis

<400> 135
 Met Ser Ser Thr Pro Asn Lys Gln Ala Gly Tyr Pro Arg Leu Val Ala
 1 5 10 15
 Asp Ile Gly Gly Thr Asn Ala Arg Phe Ala Leu Glu Thr Ala Pro Arg
 20 25 30
 Val Ile Glu Lys Ala Ala Val Leu Pro Cys Lys Asp Tyr Asp Thr Val
 35 40 45
 Thr Asp Ala Val Arg Ala Tyr Leu Asn Gln Ser Gly Ala Thr Ala Val
 50 55 60
 Arg His Ala Ala Phe Ala Ile Ala Asn Pro Ile Leu Gly Asp Trp Val
 65 70 75 80
 Gln Met Thr Asn His His Trp Ala Phe Ser Ile Glu Thr Thr Arg Gln
 85 90 95
 Thr Leu Gly Leu Asp Thr Leu Ile Leu Leu Asn Asp Phe Thr Ala Gln
 100 105 110
 Ala Leu Ala Val Thr Gln Thr Ser Ser Lys Asp Leu Met Gln Val Gly
 115 120 125
 Gly Gln Lys Pro Val Glu Phe Ala Pro Lys Ala Val Ile Gly Pro Gly
 130 135 140
 Thr Gly Leu Gly Val Ser Gly Leu Val His Ser His Ala Gly Trp Val
 145 150 155 160
 Ala Leu Ala Gly Glu Gly Gly His Thr Ser Phe Pro Pro Phe Asp Asp
 165 170 175
 Met Glu Val Leu Ile Trp Gln Tyr Ala Lys Asn Lys Tyr Gly His Val
 180 185 190
 Ser Ala Glu Arg Phe Leu Ser Gly Ala Gly Leu Ser Leu Val Tyr Glu
 195 200 205
 Ala Leu Ala Ala Lys Gln Lys Ala Lys Pro Ala Lys Leu Met Pro Ser
 210 215 220
 Glu Ile Thr Glu Lys Ala Leu Ser Gly Ala Ser Pro Leu Cys Arg Gln
 225 230 235 240
 Thr Leu Asp Ile Phe Cys Ala Met Leu Gly Thr Val Ala Ser Asn Leu
 245 250 255
 Ala Leu Thr Leu Gly Ala Arg Gly Gly Val Tyr Leu Cys Gly Gly Ile
 260 265 270
 Ile Pro Arg Val Leu Glu Tyr Phe Lys Thr Ser Pro Phe Arg Ser Arg
 275 280 285
 Phe Glu Asn Lys Gly Arg Phe Glu Ala Tyr Leu Ala Ala Ile Pro Val
 290 295 300

SEQLIST_PP019737.0004.txt

Tyr Val Val Leu Ser Glu Phe Pro Gly Ile Ser Gly Ala Ala Ala Ala
305 310 315 320

Leu Asp Asn His Leu Arg Asn Val
325

<210> 136

<211> 481

<212> PRT

<213> Neisseria meningitidis

<400> 136

Met Ser Thr Gln Thr Asn Phe Asp Leu Val Leu Phe Gly Ala Thr Gly
1 5 10 15

Asp Leu Ala Met Arg Lys Leu Leu Pro Cys Leu Tyr Gln Ala His Val
20 25 30

Ala Gly Leu Leu His Pro Glu Gly Arg Ile Leu Gly Val Ser Arg Ser
35 40 45

Glu Leu Asp Thr Glu Gly Phe Leu Ala Lys Val Glu Thr Ser Ser Lys
50 55 60

Ile His Val Lys Glu Asn Phe Ser Asp Glu Ala Trp Ala Ser Phe Val
65 70 75 80

Glu Arg Phe Ala Tyr Leu Lys Val Asp Val Thr Gln Pro Asp Asp Phe
85 90 95

Ala Ala Leu Gly Asp Leu Val Lys Ala Arg Lys Glu Thr Asp Asn Val
100 105 110

Val Ile Tyr Leu Ser Thr Ala Pro Lys Phe Phe Ala Gln Ala Cys Glu
115 120 125

Asn Leu Ala Ala Ile Gly Leu Asn Ala Asp Asn Val Arg Val Val Leu
130 135 140

Glu Lys Pro Leu Gly Thr Asp Leu Ala Ser Ser Gln Gln Ile Asn Thr
145 150 155 160

Asp Val Ala Arg Tyr Phe Lys Glu Gly Gln Ile Tyr Arg Ile Asp His
165 170 175

Tyr Leu Gly Lys Glu Ser Leu Gln Asn Leu Leu Ala Leu Arg Phe Ala
180 185 190

Asn Val Met Phe Glu Pro Leu Trp Asn Asn Lys Tyr Ile Glu Ser Val
195 200 205

Gln Leu Thr Ile Ala Glu Gln Leu Gly Val Glu Glu Arg Gly Glu Phe
210 215 220

Tyr Asp Ile Thr Gly Ala Leu Arg Asp Met Val Gln Asn His Leu Met
225 230 235 240

Gln Met Leu Cys Met Thr Ala Met Glu Ala Pro Ala Ser Leu Asp Ala
245 250 255

Asp Ala Val Arg Asp Glu Lys Val Lys Val Ile Lys Ser Leu Lys Pro
260 265 270

SEQLIST_PP019737.0004.txt

Leu Thr Val Glu Ser Val Asn Glu Asn Val Val Arg Gly Gln Tyr Thr
 275 280 285
 Ala Ala Arg Gly Met Asn Gly Tyr Leu Glu Glu Ile Asn Val Pro Gln
 290 295 300
 Asp Ser Phe Thr Glu Thr Tyr Val Ala Ile Lys Ala Glu Ile Glu Asn
 305 310 315 320
 Glu Arg Trp Lys Gly Val Pro Phe Tyr Leu Arg Thr Gly Lys Arg Met
 325 330 335
 Ala Gly Lys Val Ala Glu Ile Val Leu Asn Phe Lys Asp Leu Asn Ser
 340 345 350
 His Ile Phe Glu Gly Ser Arg Thr Ala Pro Asn Arg Leu Val Ile Glu
 355 360 365
 Leu Gln Pro Tyr Glu Ser Val Arg Leu Tyr Thr Gln Met Lys Thr Pro
 370 375 380
 Gly Ala Gly Asn Lys Val Glu Thr Val Pro Leu Ala Thr Asp Leu Gly
 385 390 395 400
 Lys Ala Leu Glu Gly Arg Arg Ala Glu Ala Tyr Glu Arg Leu Leu Leu
 405 410 415
 Asp Val Ile Asn Gly Lys Leu Ala Leu Phe Asn Arg Arg Asp Glu Leu
 420 425 430
 Glu Ala Ala Trp Glu Tyr Val Met Pro Ile Leu Glu Asn Trp Thr Asn
 435 440 445
 Asn Thr Thr Pro Pro His Gly Tyr Gly Ala His Ser Trp Gly Pro Glu
 450 455 460
 Ala Ala Arg Glu Leu Leu Ala Arg Asp Gly His Lys Trp His Glu Glu
 465 470 475 480
 Gln

<210> 137
 <211> 503
 <212> PRT
 <213> Neisseria meningitidis

<400> 137
 Met Ser Glu Gln Asn His Pro Gln Thr Glu Pro Gln Leu Asp Glu Asn
 1 5 10 15
 Gln Ile Ile Ala Leu Arg Arg Glu Lys Leu His Asn Ile Arg Gln Gln
 20 25 30
 Arg Asn Ala Tyr Pro Asn Asp Phe Lys Arg Asp Ser Phe Ala Ala Asp
 35 40 45
 Leu His Ala Gln Tyr Gly Glu Ile Gly Lys Glu Glu Leu Asp Pro Gln
 50 55 60
 Gly Ile Pro Val Lys Val Ala Gly Arg Met Met Leu Lys Arg Gln Met
 65 70 75 80

SEQLIST_PP019737.0004.txt

Gly Lys Ala Ser Phe Ala Thr Ile Gln Asp Val Ser Gly Gln Ile Gln
 85 90 95
 Leu Tyr Leu Asn Asn Lys Gly Val Ser Gln Glu Val Leu Asp Asp Phe
 100 105 110
 Asn His Trp Asp Leu Gly Asp Ile Val Gly Ala Glu Gly Thr Leu Phe
 115 120 125
 Lys Thr Asn His Gly Glu Leu Thr Val Arg Val Ser Gly Ile Arg Leu
 130 135 140
 Leu Ser Lys Ser Leu Arg Pro Leu Pro Asp Lys His Lys Gly Leu Ser
 145 150 155 160
 Asp Gln Glu Thr Lys Tyr Arg Gln Arg Tyr Val Asp Leu Ile Ala Asn
 165 170 175
 Glu Glu Ser Arg Asn Thr Phe Ile Lys Arg Ser Gln Ile Ile Gln Ser
 180 185 190
 Val Arg Asn Phe Met Val Gly Glu His Tyr Leu Glu Val Glu Thr Pro
 195 200 205
 Met Met His Pro Ile Pro Gly Gly Ala Thr Ala Lys Pro Phe Val Thr
 210 215 220
 His His Asn Ala Leu Asp Ile Pro Leu Tyr Leu Arg Ile Ala Pro Glu
 225 230 235 240
 Leu Tyr Leu Lys Arg Leu Val Val Gly Gly Leu Glu Arg Val Phe Glu
 245 250 255
 Ile Asn Arg Ser Phe Arg Asn Glu Gly Met Ser Val Arg His Asn Pro
 260 265 270
 Glu Phe Thr Met Ile Glu Phe Tyr Glu Ala Phe Ser Asp Tyr Glu Arg
 275 280 285
 Met Met Gln Met Ala Glu Asp Ile Ile Arg Asn Ala Ser Arg Thr Val
 290 295 300
 Asn Gly Thr Ala Asn Ile Thr Tyr Asn Gly Lys Glu Val Asp Leu Glu
 305 310 315 320
 Ser Pro Phe Glu Arg Leu Thr Ile Leu Glu Ala Ile Lys Lys Tyr Asn
 325 330 335
 Pro His Tyr Thr Asp Glu Gln Leu Asn Asp Ala Glu Trp Leu Lys Lys
 340 345 350
 Glu Ile Val Lys His Gly Glu Ser Leu Pro Pro Ser Pro Gly Ile Gly
 355 360 365
 Ser Leu Gln Leu Ala Leu Phe Glu Gly Cys Ala Glu Gly Lys Leu Trp
 370 375 380
 Asn Pro Thr Phe Ile Val Asp Tyr Pro Val Glu Val Ser Pro Leu Ala
 385 390 395 400
 Arg Ala Ser Asp Thr Lys Gln Gly Leu Thr Glu Arg Phe Glu Leu Phe
 405 410 415

SEQLIST_PP019737.0004.txt

Val Val Gly Arg Glu Leu Ala Asn Gly Tyr Ser Glu Leu Asn Asp Pro
420 425 430
Glu Asp Gln Ala Glu Arg Phe Lys Ala Gln Val Val Gln Lys Asp Ala
435 440 445
Gly Asp Asp Glu Ala Met His Tyr Asp Ala Asp Tyr Ile Arg Ala Met
450 455 460
Glu Phe Gly Leu Pro Pro Thr Gly Gly Cys Gly Ile Gly Ile Asp Arg
465 470 475 480
Leu Val Met Leu Leu Thr Asp Ser Gln Thr Ile Arg Asp Val Ile Leu
485 490 495
Phe Pro Gln Met Arg Pro Glu
500

<210> 138
<211> 392
<212> PRT
<213> Neisseria meningitidis

<400> 138
Met Arg Lys Lys Leu Thr Ala Leu Val Leu Ser Ala Leu Pro Leu Ala
1 5 10 15
Ala Val Ala Asp Val Ser Leu Tyr Gly Glu Ile Lys Ala Gly Val Glu
20 25 30
Gly Arg Asn Tyr Gln Leu Gln Leu Thr Glu Ala Gln Ala Ala Asn Gly
35 40 45
Gly Ala Ser Gly Gln Val Lys Val Thr Lys Val Thr Lys Ala Lys Ser
50 55 60
Arg Ile Arg Thr Lys Ile Ser Asp Phe Gly Ser Phe Ile Gly Phe Lys
65 70 75 80
Gly Ser Glu Asp Leu Gly Asp Gly Leu Lys Ala Val Trp Gln Leu Glu
85 90 95
Gln Asp Val Ser Val Ala Gly Gly Gly Ala Thr Gln Trp Gly Asn Arg
100 105 110
Glu Ser Phe Ile Gly Leu Ala Gly Glu Phe Gly Thr Leu Arg Ala Gly
115 120 125
Arg Val Ala Asn Gln Phe Asp Asp Ala Ser Gln Ala Ile Asp Pro Trp
130 135 140
Asp Ser Asn Asn Asp Val Ala Ser Gln Leu Gly Ile Phe Lys Arg His
145 150 155 160
Asp Asp Met Pro Val Ser Val Arg Tyr Asp Ser Pro Glu Phe Ser Gly
165 170 175
Phe Ser Gly Ser Val Gln Phe Val Pro Ile Gln Asn Ser Lys Ser Ala
180 185 190
Tyr Thr Pro Ala Tyr Tyr Thr Lys Asn Thr Asn Asn Asn Leu Thr Leu
195 200 205

SEQLIST_PP019737.0004.txt

Val Pro Ala Val Val Gly Lys Pro Gly Ser Asp Val Tyr Tyr Ala Gly
 210 215 220
 Leu Asn Tyr Lys Asn Gly Gly Phe Ala Gly Asn Tyr Ala Phe Lys Tyr
 225 230 235 240
 Ala Arg His Ala Asn Val Gly Arg Asn Ala Phe Glu Leu Phe Leu Ile
 245 250 255
 Gly Ser Gly Ser Asp Gln Ala Lys Gly Thr Asp Pro Leu Lys Asn His
 260 265 270
 Gln Val His Arg Leu Thr Gly Gly Tyr Glu Glu Gly Gly Leu Asn Leu
 275 280 285
 Ala Leu Ala Ala Gln Leu Asp Leu Ser Glu Asn Gly Asp Lys Thr Lys
 290 295 300
 Asn Ser Thr Thr Glu Ile Ala Ala Thr Ala Ser Tyr Arg Phe Gly Asn
 305 310 315 320
 Ala Val Pro Arg Ile Ser Tyr Ala His Gly Phe Asp Phe Ile Glu Arg
 325 330 335
 Gly Lys Lys Gly Glu Asn Thr Ser Tyr Asp Gln Ile Ile Ala Gly Val
 340 345 350
 Asp Tyr Asp Phe Ser Lys Arg Thr Ser Ala Ile Val Ser Gly Ala Trp
 355 360 365
 Leu Lys Arg Asn Thr Gly Ile Gly Asn Tyr Thr Gln Ile Asn Ala Ala
 370 375 380
 Ser Val Gly Leu Arg His Lys Phe
 385 390

<210> 139
 <211> 348
 <212> PRT
 <213> Neisseria meningitidis

<400> 139
 Met Ser Asp Asp Lys Ser Lys Ala Leu Ala Ala Ala Leu Ala Gln Ile
 1 5 10 15
 Glu Lys Ser Phe Gly Lys Gly Ala Ile Met Lys Met Asp Gly Ser Gln
 20 25 30
 Gln Glu Glu Asn Leu Glu Val Ile Ser Thr Gly Ser Leu Gly Leu Asp
 35 40 45
 Leu Ala Leu Gly Val Gly Gly Leu Pro Arg Gly Arg Ile Val Glu Ile
 50 55 60
 Phe Gly Pro Glu Ser Ser Gly Lys Thr Thr Leu Cys Leu Glu Ala Val
 65 70 75 80
 Ala Gln Cys Gln Lys Asn Gly Gly Val Cys Ala Phe Val Asp Ala Glu
 85 90 95
 His Ala Phe Asp Pro Val Tyr Ala Arg Lys Leu Gly Val Lys Val Glu
 100 105 110

SEQLIST_PP019737.0004.txt

Glu Leu Tyr Leu Ser Gln Pro Asp Thr Gly Glu Gln Ala Leu Glu Ile
115 120 125
Cys Asp Thr Leu Val Arg Ser Gly Gly Ile Asp Met Val Val Val Asp
130 135 140
Ser Val Ala Ala Leu Val Pro Lys Ala Glu Ile Glu Gly Asp Met Gly
145 150 155 160
Asp Ser His Val Gly Leu Gln Ala Arg Leu Met Ser Gln Ala Leu Arg
165 170 175
Lys Leu Thr Gly His Ile Lys Lys Thr Asn Thr Leu Val Val Phe Ile
180 185 190
Asn Gln Ile Arg Met Lys Ile Gly Val Met Phe Gly Ser Pro Glu Thr
195 200 205
Thr Thr Gly Gly Asn Ala Leu Lys Phe Tyr Ser Ser Val Arg Leu Asp
210 215 220
Ile Arg Arg Thr Gly Ser Ile Lys Lys Gly Glu Glu Val Leu Gly Asn
225 230 235 240
Glu Thr Arg Val Lys Val Ile Lys Asn Lys Val Ala Pro Pro Phe Arg
245 250 255
Gln Ala Glu Phe Asp Ile Leu Tyr Gly Glu Gly Ile Ser Trp Glu Gly
260 265 270
Glu Leu Ile Asp Ile Gly Val Lys Asn Asp Ile Ile Asn Lys Ser Gly
275 280 285
Ala Trp Tyr Ser Tyr Asn Gly Ala Lys Ile Gly Gln Gly Lys Asp Asn
290 295 300
Val Arg Val Trp Leu Lys Glu Asn Pro Glu Val Ala Asn Glu Ile Asp
305 310 315 320
Ala Lys Ile Arg Ala Leu Asn Gly Val Glu Met His Ile Thr Glu Gly
325 330 335
Thr Gln Asp Glu Thr Asp Gly Glu Arg Pro Glu Glu
340 345

<210> 140
<211> 379
<212> PRT
<213> Neisseria meningitidis

<400> 140
Met Gln Asn Ile Phe Asp Pro Leu Val Ile Arg Gly Lys Ser Leu Thr
1 5 10 15
Pro Ile Val Gln Gly Gly Met Gly Val Gly Val Ser Ala Ser Gly Leu
20 25 30
Ser Ser Ala Val Ala Arg Glu Asn Gly Ile Gly Thr Ile Ala Ser Val
35 40 45
Asp Leu Arg His Leu His Glu Asp Leu Leu Ala Glu Ser Gln Ile Asn
50 55 60

SEQLIST_PP019737.0004.txt

Pro Ser Glu Glu Lys Tyr Thr Ser Leu Asn Cys Thr Ala Leu Asp Arg
65 70 75 80
Glu Ile Gln Lys Ala Lys Ser Ala Ser Glu Gly Lys Gly Leu Ile Ala
85 90 95
Val Asn Val Met Lys Ala Val Lys Asp His Ala Ala Tyr Val Arg Gln
100 105 110
Ala Cys Glu Ser Gly Ala Asp Ala Val Val Met Gly Ala Gly Leu Pro
115 120 125
Leu Asp Leu Pro Glu Met Thr Glu Gly Tyr His Lys Asp Val Ala Leu
130 135 140
Leu Pro Ile Leu Ser Glu Ser Arg Gly Ile Asn Ile Val Leu Lys Arg
145 150 155 160
Trp Met Lys Lys Gly Ile Leu Pro Asp Ala Ile Val Val Glu His Pro
165 170 175
Ala His Ala Ala Gly His Leu Gly Ala Ser Thr Val Glu Gly Val Asn
180 185 190
Asp Ala Lys Phe Asp Phe Lys Arg Val Ile Glu Glu Thr Phe Glu Val
195 200 205
Phe Lys Ser Leu Gly Leu Glu Ser Glu Lys Ile Pro Leu Ile Leu Ala
210 215 220
Gly Gly Met Ala Asn Phe Glu Lys Val Lys Thr Ala Leu Lys Asn Trp
225 230 235 240
Gly Ala Ser Ala Val Gln Ile Gly Thr Ala Phe Ala Val Thr Glu Glu
245 250 255
Gly Asp Ala His Leu Asn Phe Lys Lys Thr Leu Ala Gly Ala Glu Thr
260 265 270
Glu Lys Val Val Glu Phe Met Ser Val Ala Gly Leu Pro Ala Arg Gly
275 280 285
Val Arg Thr Lys Phe Leu Asp Ser Tyr Ile Lys Arg Glu Ser Lys Leu
290 295 300
Gln Thr Asn Ala Lys Ala Asp Pro Arg Arg Cys Thr Gln Gly Leu Asn
305 310 315 320
Cys Leu Thr Ser Cys Gly Leu Arg Asp Gly Leu Ser Lys Ala Gly Gln
325 330 335
Phe Cys Ile Asp Ile Gln Leu Ala Ala Ala Phe Arg Gly Glu Val Asp
340 345 350
Lys Gly Leu Phe Phe Arg Gly Lys Asp Arg Cys Pro Ser Ala Met Pro
355 360 365
Ser Ala Pro Ser Ala Arg Arg Tyr Asn Ile Cys
370 375

<210> 141
<211> 659

<212> PRT

<213> Neisseria meningitidis

<400> 141

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Met Ser Gln Leu Ala Asn Ala Ile Arg Phe Leu Ser Ala Asp Ala Val
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Gln Lys Ala Asn Ser Gly His Pro Gly Ala Pro Met Gly Met Ala Glu
20      25      30
Met Ala Glu Thr Leu Trp Thr Lys Phe Leu Asn His Asn Pro Ala Asn
35      40      45
Pro Lys Phe Tyr Asn Arg Asp Arg Phe Val Leu Ser Asn Gly His Ala
50      55      60
Ser Met Leu Leu Tyr Ser Leu Leu His Leu Thr Gly Tyr Asn Leu Ser
65      70      75      80
Ile Glu Asp Leu Lys Asn Phe Arg Gln Leu His Ser Lys Thr Pro Gly
85      90      95
His Pro Glu Tyr Gly Tyr Thr Asp Gly Val Glu Thr Thr Thr Gly Pro
100     105     110
Leu Gly Gln Gly Ile Ala Asn Ala Val Gly Met Ala Leu Ala Glu Lys
115     120     125
Ile Leu Ala Ala Glu Phe Asn Lys Asp Gly Leu Asn Ile Val Asp His
130     135     140
Tyr Thr Tyr Val Phe Met Gly Asp Gly Cys Leu Met Glu Gly Val Ser
145     150     155     160
His Glu Ala Cys Ser Leu Ala Gly Thr Leu Gly Leu Gly Lys Leu Ile
165     170     175
Val Leu Tyr Asp Asp Asn Asn Ile Ser Ile Asp Gly Lys Val Asp Gly
180     185     190
Trp Phe Thr Glu Asn Ile Pro Gln Arg Phe Glu Ser Tyr Gly Trp His
195     200     205
Val Val Pro Asn Val Asn Gly His Asp Thr Ala Ala Ile Gln Ala Ala
210     215     220
Ile Glu Ala Ala Arg Ala Glu Thr Gly Lys Pro Ser Ile Ile Cys Cys
225     230     235     240
Lys Thr Leu Ile Gly Lys Gly Ser Ala Asn Lys Glu Gly Ser His Lys
245     250     255
Thr His Gly Ala Pro Leu Gly Ala Asp Glu Ile Glu Ala Thr Arg Lys
260     265     270
His Leu Gly Trp Thr Tyr Pro Ala Phe Glu Ile Pro Gln Glu Ile Tyr
275     280     285
Asp Ala Trp Asn Ala Lys Glu Gln Gly Ala Lys Leu Glu Ala Asp Trp
290     295     300
Asn Glu Leu Phe Ala Gln Tyr Gln Ala Lys Tyr Pro Ala Glu Ala Ala
305     310     315     320

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SEQLIST_PP019737.0004.txt

Glu Phe Val Arg Arg Met Asp Lys Lys Leu Pro Asp Asn Phe Asp Glu
 325 330 335
 Tyr Val Gln Ala Ala Leu Lys Glu Val Cys Ala Lys Ala Glu Thr Ile
 340 345 350
 Ala Thr Arg Lys Ala Ser Gln Asn Ser Ile Glu Ile Leu Ala Lys Glu
 355 360 365
 Leu Pro Glu Leu Val Gly Gly Ser Ala Asp Leu Thr Pro Ser Asn Leu
 370 375 380
 Thr Asp Trp Ser Asn Ser Val Ser Val Thr Arg Asp Lys Gly Gly Asn
 385 390 395 400
 Tyr Ile His Tyr Gly Val Arg Glu Phe Gly Met Gly Ala Ile Met Asn
 405 410 415
 Gly Leu Val Leu His Gly Gly Val Lys Pro Phe Gly Ala Thr Phe Leu
 420 425 430
 Met Phe Ser Glu Tyr Glu Arg Asn Ala Leu Arg Met Ala Ala Leu Met
 435 440 445
 Lys Ile Asn Pro Val Phe Val Phe Thr His Asp Ser Ile Gly Leu Gly
 450 455 460
 Glu Asp Gly Pro Thr His Gln Pro Ile Glu Gln Thr Ala Thr Leu Arg
 465 470 475 480
 Leu Ile Pro Asn Met Asp Val Trp Arg Pro Cys Asp Thr Ala Glu Ser
 485 490 495
 Leu Val Ala Trp Ala Glu Ala Val Lys Ala Ala Asp His Pro Ser Cys
 500 505 510
 Leu Ile Phe Ser Arg Gln Asn Leu Lys Phe Gln Ala Arg Ser Glu Gln
 515 520 525
 Gln Leu Asn Asp Ile Lys Arg Gly Gly Tyr Val Ile Ser Glu Ala Gln
 530 535 540
 Gly Asn Ala Gln Ala Val Ile Ile Ala Thr Gly Ser Glu Val Glu Leu
 545 550 555 560
 Ala Leu Glu Ala Gln Lys Ala Leu Ala Ala Gln Asn Ile Ala Val Arg
 565 570 575
 Val Val Ser Met Pro Ser Thr Asn Val Phe Asp Arg Gln Asp Ala Ala
 580 585 590
 Tyr Gln Ala Ala Val Leu Pro Glu Gly Leu Pro Arg Ile Ala Val Glu
 595 600 605
 Ala Gly His Ala Asp Gly Trp Tyr Lys Tyr Val Gly Leu Asn Gly Ala
 610 615 620
 Val Val Gly Ile Asn Arg Phe Gly Glu Ser Ala Pro Ala Asp Leu Leu
 625 630 635 640
 Phe Lys Ala Phe Gly Phe Thr Val Asp Asn Val Val Asp Thr Val Lys
 645 650 655

Ser Val Leu

<210> 142
 <211> 336
 <212> PRT
 <213> Neisseria meningitidis

<400> 142
 Met Ser Lys Lys Arg Val Leu Thr Gly Val Thr Thr Thr Gly Ile Pro
 1 5 10 15
 His Leu Gly Asn Tyr Val Gly Ala Ile Arg Pro Ala Val Arg Ala Ala
 20 25 30
 Gln Asn Leu Asp Thr Glu Ser Phe Leu Phe Leu Ala Asp Tyr His Gly
 35 40 45
 Ile Ile Lys Cys His Glu Pro Glu Met Ile His Gln Ser Thr Gln Ala
 50 55 60
 Val Ala Ala Thr Trp Leu Ala Cys Gly Leu Asp Pro Glu Arg Thr Thr
 65 70 75 80
 Phe Tyr Arg Gln Ser Asp Thr Pro Glu Val Met Glu Leu Asn Trp Ile
 85 90 95
 Leu Thr Cys Ile Thr Ala Lys Gly Leu Met Asn Arg Ala His Ala Tyr
 100 105 110
 Lys Ala Ala Val Gln Ala Asn Ala Glu Asn Gly Gln Glu Asp Pro Asp
 115 120 125
 Phe Gly Val Glu Met Gly Leu Phe Ser Tyr Pro Ile Leu Met Thr Ala
 130 135 140
 Asp Ile Leu Met Phe Asn Ala Asn Glu Val Pro Val Gly Arg Asp Gln
 145 150 155 160
 Ile Gln His Val Glu Met Ala Arg Asp Ile Ala Gly Arg Phe Asn His
 165 170 175
 Arg Phe Arg Glu Leu Phe Thr Leu Pro Glu Val Lys Ile Asp Glu Asn
 180 185 190
 Val Glu Leu Leu Val Gly Leu Asp Gly Arg Lys Met Ser Lys Ser Tyr
 195 200 205
 Gly Asn Thr Ile Pro Leu Trp Glu Asn Asp Lys Lys Thr Gln Lys Ser
 210 215 220
 Val Asn Lys Ile Ile Thr Asn Met Lys Glu Pro Gly Glu Pro Lys Gln
 225 230 235 240
 Pro Asp Glu Ser Pro Leu Phe Glu Ile Tyr Lys Ala Phe Ser Thr Pro
 245 250 255
 Ser Glu Thr Val Glu Phe Thr Lys Met Leu Ala Asp Gly Leu Ala Trp
 260 265 270
 Gly Glu Ala Lys Lys Leu Leu Ala Ala Lys Ile Asn Ala Glu Leu Ala
 275 280 285

SEQLIST_PP019737.0004.txt

Glu Pro Arg Glu Arg Tyr Asn Glu Leu Thr Ala Asp Pro Ser Gln Ile
 290 295 300
 Glu Glu Ile Leu Gln Ala Gly Ala Ala Lys Ala Arg Lys Glu Ala Arg
 305 310 315 320
 Glu Leu Leu Asp Lys Val Arg Asp Ala Val Gly Ile Arg Pro Leu Lys
 325 330 335

<210> 143
 <211> 859
 <212> PRT
 <213> Neisseria meningitidis

<400> 143
 Met Arg Tyr Asp Lys Leu Thr Ala Lys Phe Gln Gln Ala Leu Ala Glu
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 20 25 30
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 35 40 45
 Leu Leu Ala His Ala Gly Val Asn Val Pro Gln Val Lys Gln Arg Leu
 50 55 60
 Gln Gln His Leu Asn Ser Leu Pro Lys Val Ser Gly Gln Gly Gly Asp
 65 70 75 80
 Ile Leu Pro Ser Arg Glu Leu Gln Ala Val Leu Asn Leu Met Asp Lys
 85 90 95
 Ala Ala Thr Lys Arg Ser Asp Ala Tyr Ile Ala Ser Glu Leu Phe Leu
 100 105 110
 Leu Ala Leu Val Gln Gln Asn Asp Ala Thr Gly Lys Ile Leu Lys Glu
 115 120 125
 Ala Gly Ala Thr Glu Gln Asn Ile Asn Ala Ala Ile Asp Ala Val Arg
 130 135 140
 Gly Gly Gln Asn Val Asn Asp Ala Asn Ala Glu Asp Gln Arg Asp Ala
 145 150 155 160
 Leu Lys Lys Tyr Thr Leu Asp Leu Thr Gln Arg Ala Arg Asp Gly Lys
 165 170 175
 Leu Asp Pro Val Ile Gly Arg Asp Asp Glu Ile Arg Arg Ala Ile Gln
 180 185 190
 Val Leu Gln Arg Arg Thr Lys Asn Asn Pro Val Leu Ile Gly Glu Pro
 195 200 205
 Gly Val Gly Lys Thr Ala Ile Val Glu Gly Leu Ala Gln Arg Ile Val
 210 215 220
 Asn Gly Glu Val Pro Glu Ser Leu Arg Asn Lys Arg Leu Leu Val Leu
 225 230 235 240
 Asp Leu Ala Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu

580

585

590

Ser Gly Leu Ala Asp Pro Asn Lys Pro Tyr Gly Ser Phe Leu Phe Leu
595 600 605
Gly Pro Thr Gly Val Gly Lys Thr Glu Leu Cys Lys Ala Leu Ala Gly
610 615 620
Phe Leu Phe Asp Ser Glu Asp His Leu Ile Arg Ile Asp Met Ser Glu
625 630 635 640
Tyr Met Glu Lys His Ala Val Ala Arg Leu Ile Gly Ala Pro Pro Gly
645 650 655
Tyr Val Gly Tyr Glu Glu Gly Gly Tyr Leu Thr Glu Gln Val Arg Arg
660 665 670
Lys Pro Tyr Ser Val Ile Leu Leu Asp Glu Val Glu Lys Ala His Pro
675 680 685
Asp Val Phe Asn Ile Leu Leu Gln Val Leu Asp Asp Gly Arg Leu Thr
690 695 700
Asp Gly Gln Gly Arg Thr Val Asp Phe Lys Asn Thr Val Ile Val Met
705 710 715 720
Thr Ser Asn Ile Gly Ser Gln His Ile Gln Gln Met Gly Ile Gln Asp
725 730 735
Tyr Glu Ala Val Lys Glu Val Val Met Glu Asp Val Lys Glu His Phe
740 745 750
Arg Pro Glu Met Ile Asn Arg Ile Asp Glu Val Val Val Phe His Gly
755 760 765
Leu Asp Gln Asp Asn Ile Arg Asn Ile Ala Lys Ile Gln Leu Lys Gly
770 775 780
Leu Glu Lys Arg Leu Glu Lys Gln Asn Leu Arg Leu Ala Val Ser Asp
785 790 795 800
Ala Ala Leu Asp Ile Ile Ala Lys Ala Gly Phe Asp Pro Ile Tyr Gly
805 810 815
Ala Arg Pro Leu Lys Arg Ala Ile Gln Ser Glu Ile Glu Asn Pro Leu
820 825 830
Ala Lys Ala Leu Leu Ala Gly Asn Tyr Ala Pro Glu Ser Glu Ile Arg
835 840 845
Val Glu Ala Asp Gly Asp Arg Leu Lys Phe Ala
850 855

<210> 144

<211> 572

<212> PRT

<213> Neisseria meningitidis

<400> 144

Met Asn Leu His Gln Thr Val Glu His Glu Ala Ala Ala Ala Phe Ala
1 5 10 15

Ala Ala Gly Ile Ala Asp Ser Pro Ile Val Leu Gln Pro Thr Lys Asn

20

25

30

Ala Glu His Gly Asp Phe Gln Ile Asn Gly Val Met Gly Ala Ala Lys
35 40 45
Lys Ala Lys Gln Asn Pro Arg Glu Leu Ala Gln Lys Val Ala Glu Ala
50 55 60
Leu Ala Asp Asn Ala Val Ile Glu Ser Ala Glu Val Ala Gly Pro Gly
65 70 75 80
Phe Ile Asn Leu Arg Leu Arg Pro Glu Phe Leu Ala Gln Asn Ile Gln
85 90 95
Thr Ala Leu Asn Asp Ala Arg Phe Gly Val Ala Lys Thr Asp Lys Pro
100 105 110
Gln Thr Val Val Ile Asp Tyr Ser Ser Pro Asn Leu Ala Lys Glu Met
115 120 125
His Val Gly His Leu Arg Ser Ser Ile Ile Gly Asp Ser Ile Ser Arg
130 135 140
Val Leu Ala Phe Met Gly Asn Thr Val Ile Arg Gln Asn His Val Gly
145 150 155 160
Asp Trp Gly Thr Gln Phe Gly Met Leu Val Ala Tyr Leu Val Glu Gln
165 170 175
Gln Lys Asp Asn Ala Ala Phe Glu Leu Ala Asp Leu Glu Gln Phe Tyr
180 185 190
Arg Ala Ala Lys Val Arg Phe Asp Glu Asp Pro Ala Phe Ala Asp Thr
195 200 205
Ala Arg Glu Tyr Val Val Lys Leu Gln Gly Gly Asp Glu Thr Val Leu
210 215 220
Ala Leu Trp Lys Gln Phe Val Asp Ile Ser Leu Ser His Ala Gln Ala
225 230 235 240
Val Tyr Asp Thr Leu Gly Leu Lys Leu Arg Pro Glu Asp Val Ala Gly
245 250 255
Glu Ser Lys Tyr Asn Asp Asp Leu Gln Pro Val Val Asp Asp Leu Val
260 265 270
Gln Lys Gly Leu Ala Val Glu Asp Asp Gly Ala Lys Val Val Phe Leu
275 280 285
Asp Glu Phe Lys Asn Lys Glu Gly Glu Pro Ala Ala Phe Ile Val Gln
290 295 300
Lys Gln Gly Gly Gly Phe Leu Tyr Ala Ser Thr Asp Leu Ala Cys Leu
305 310 315 320
Arg Tyr Arg Ile Gly Arg Leu Lys Ala Asp Arg Leu Leu Tyr Val Val
325 330 335
Asp His Arg Gln Ala Leu His Phe Glu Gln Leu Phe Thr Thr Ser Arg
340 345 350
Lys Ala Gly Tyr Leu Pro Glu Asn Val Gly Ala Ala Phe Ile Gly Phe

355

Gly Thr Met Met Gly Lys Asp Gly Lys Pro Phe Lys Thr Arg Ser Gly
370 375 380
Asp Thr Val Lys Leu Val Asp Leu Leu Thr Glu Ala Val Glu Arg Ala
385 390 395 400
Thr Ala Leu Val Lys Glu Lys Asn Pro Glu Leu Gly Ala Asp Glu Ala
405 410 415
Ala Lys Ile Gly Lys Thr Val Gly Ile Gly Ala Val Lys Tyr Ala Asp
420 425 430
Leu Ser Lys Asn Arg Thr Ser Asp Tyr Val Phe Asp Trp Asp Ala Met
435 440 445
Leu Ser Phe Glu Gly Asn Thr Ala Pro Tyr Leu Gln Tyr Ala Tyr Thr
450 455 460
Arg Val Gln Ser Val Phe Arg Lys Ala Gly Glu Trp Asp Ala Asn Ala
465 470 475 480
Pro Thr Val Leu Thr Glu Pro Leu Glu Lys Gln Leu Ala Ala Glu Leu
485 490 495
Leu Lys Phe Glu Asp Val Leu Gln Ser Val Ala Asp Thr Ala Tyr Pro
500 505 510
His Tyr Leu Ala Ala Tyr Leu Tyr Gln Ile Ala Thr Leu Phe Ser Arg
515 520 525
Phe Tyr Glu Ala Cys Pro Ile Leu Lys Ala Glu Gly Ala Ser Arg Asn
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545 550 555 560
Leu Asp Leu Leu Gly Ile Asp Val Leu Asp Val Met
565 570

<210> 145
<211> 398
<212> PRT
<213> Neisseria meningitidis

<400> 145
Met Ser Gln Lys Leu Ile Leu Val Leu Asn Cys Gly Ser Ser Ser Leu
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20 25 30
Leu Ala Glu Lys Leu Asn Leu Pro Asp Ala Tyr Ile Thr Phe Lys Val
35 40 45
Asn Gly Glu Lys His Lys Val Asp Leu Ser Ala His Pro Asp His Thr
50 55 60
Gly Ala Val Glu Ala Leu Met Glu Glu Leu Lys Ala His Gly Leu Asp
65 70 75 80
Ser Arg Ile Gly Ala Ile Gly His Arg Val Val Ser Gly Gly Glu Leu
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85

90

95

Tyr Ser Glu Ser Ile Leu Val Asp Asp Glu Val Ile Ala Gly Ile Glu
100 105 110
Lys Cys Ile Pro Leu Ala Pro Leu His Asn Pro Ala His Leu Leu Gly
115 120 125
Leu Arg Ala Ala Gln Ser Ile Phe Lys Gly Leu Pro Asn Val Val Val
130 135 140
Phe Asp Thr Ser Phe His Gln Thr Met Pro Glu Val Ala Tyr Lys Tyr
145 150 155 160
Ala Val Pro Gln Glu Leu Tyr Glu Lys Tyr Gly Leu Arg Arg Tyr Gly
165 170 175
Ala His Gly Thr Ser Tyr Arg Phe Val Ala Asp Glu Thr Ala Arg Phe
180 185 190
Leu Gly Lys Asp Lys Lys Asp Leu Arg Met Val Ile Ala His Leu Gly
195 200 205
Asn Gly Ala Ser Ile Thr Ala Val Ala Asn Gly Glu Ser Arg Asp Thr
210 215 220
Ser Met Gly Leu Thr Pro Leu Glu Gly Leu Val Met Gly Thr Arg Ser
225 230 235 240
Gly Asp Ile Asp Pro Ser Val Phe Gly Phe Leu Ala Glu Asn Ala Asn
245 250 255
Met Thr Ile Ala Gln Ile Thr Glu Met Leu Asn Lys Lys Ser Gly Leu
260 265 270
Leu Gly Ile Ser Gly Leu Ser Asn Asp Cys Arg Thr Ile Glu Glu Glu
275 280 285
Ala Ala Lys Gly His Lys Gly Ala Lys Leu Ala Leu Asp Met Phe Ile
290 295 300
Tyr Arg Leu Ala Lys Tyr Ile Gly Ser Met Ala Val Ala Ala Gly Gly
305 310 315 320
Leu Asp Ala Leu Val Phe Thr Gly Gly Ile Gly Glu Asn Ser Asp Ile
325 330 335
Ile Arg Glu Arg Val Ile Gly Tyr Leu Gly Phe Leu Gly Leu Asn Ile
340 345 350
Asp Gln Glu Ala Asn Leu Lys Ala Arg Phe Gly Asn Ala Gly Val Ile
355 360 365
Thr Thr Ala Asp Ser Lys Ala Val Ala Val Val Ile Pro Thr Asn Glu
370 375 380
Glu Leu Met Ile Ala His Asp Thr Ala Arg Leu Ser Gly Leu
385 390 395

<210> 146

<211> 183

<212> PRT

<213> Neisseria meningitidis

SEQLIST_PP019737.0004.txt

<400> 146
 Met Lys Ala Tyr Leu Ala Leu Ile Ser Ala Ala Val Ile Gly Leu Ala
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 Ala Cys Ser Gln Glu Pro Ala Ala Pro Ala Ala Glu Ala Thr Pro Ala
 20 25 30
 Ala Glu Ala Pro Ala Ser Glu Ala Pro Ala Ala Glu Ala Ala Pro Ala
 35 40 45
 Asp Ala Ala Glu Ala Pro Ala Ala Gly Asn Cys Ala Ala Thr Val Glu
 50 55 60
 Ser Asn Asp Asn Met Gln Phe Asn Thr Lys Asp Ile Gln Val Ser Lys
 65 70 75 80
 Ala Cys Lys Glu Phe Thr Ile Thr Leu Lys His Thr Gly Thr Gln Pro
 85 90 95
 Lys Ala Ser Met Gly His Asn Leu Val Ile Ala Lys Ala Glu Asp Met
 100 105 110
 Asp Gly Val Phe Lys Asp Gly Val Gly Ala Ala Asp Thr Asp Tyr Val
 115 120 125
 Lys Pro Asp Asp Ala Arg Val Val Ala His Thr Lys Leu Ile Gly Gly
 130 135 140
 Gly Glu Glu Ala Ser Leu Thr Leu Asp Pro Ala Lys Leu Ala Asp Gly
 145 150 155 160
 Glu Tyr Lys Phe Ala Cys Thr Phe Pro Gly His Gly Ala Leu Met Asn
 165 170 175
 Gly Lys Val Thr Leu Val Asp
 180

<210> 147
 <211> 916
 <212> PRT
 <213> Neisseria meningitidis

<400> 147
 Met Leu Thr Asn Ile Ala Lys Lys Ile Phe Gly Ser Arg Asn Asp Arg
 1 5 10 15
 Leu Leu Lys Gln Tyr Arg Lys Ser Val Ala Arg Ile Asn Ala Leu Glu
 20 25 30
 Glu Gln Met Gln Ala Leu Ser Asp Ala Asp Leu Gln Ala Lys Thr Ala
 35 40 45
 Glu Phe Lys Gln Arg Leu Ala Asp Gly Gln Thr Leu Asp Gly Ile Leu
 50 55 60
 Pro Glu Ala Phe Ala Val Cys Arg Glu Ala Ser Arg Arg Thr Leu Gly
 65 70 75 80
 Met Arg His Phe Asp Val Gln Leu Ile Gly Gly Met Val Leu His Asp
 85 90 95
 Gly Lys Ile Ala Glu Met Arg Thr Gly Glu Gly Lys Thr Leu Val Ala
 Page 195

100	105	110													
Thr	Leu	Ala	Val	Tyr	Leu	Asn	Ala	Leu	Ala	Gly	Lys	Gly	Val	His	Val
	115						120					125			
Val	Thr	Val	Asn	Asp	Tyr	Leu	Ala	Ser	Arg	Asp	Ala	Gly	Ile	Met	Glu
	130					135					140				
Pro	Leu	Tyr	Asn	Phe	Leu	Gly	Leu	Thr	Val	Gly	Val	Ile	Ile	Ser	Asp
145					150					155					160
Met	Gln	Pro	Phe	Asp	Arg	Gln	Asn	Ala	Tyr	Ala	Ala	Asp	Ile	Thr	Tyr
				165					170					175	
Gly	Thr	Asn	Asn	Glu	Phe	Gly	Phe	Asp	Tyr	Leu	Arg	Asp	Asn	Met	Val
			180					185					190		
Thr	Asp	Gln	Tyr	Asp	Lys	Val	Gln	Arg	Glu	Leu	Asn	Phe	Ala	Val	Val
	195						200					205			
Asp	Glu	Val	Asp	Ser	Ile	Leu	Ile	Asp	Glu	Ala	Arg	Thr	Pro	Leu	Ile
	210					215					220				
Ile	Ser	Gly	Gln	Ala	Asp	Asp	Asn	Ile	Gln	Leu	Tyr	Gln	Ile	Met	Asn
225					230					235					240
Thr	Val	Pro	Pro	His	Leu	Val	Arg	Gln	Glu	Thr	Glu	Glu	Gly	Glu	Gly
				245					250					255	
Asp	Tyr	Trp	Val	Asp	Glu	Lys	Ala	His	Gln	Val	Ile	Leu	Ser	Glu	Ala
			260					265					270		
Gly	His	Glu	His	Ala	Glu	Gln	Ile	Leu	Thr	Gln	Met	Gly	Leu	Leu	Ala
		275					280					285			
Glu	Asn	Asp	Ser	Leu	Tyr	Ser	Ala	Ala	Asn	Ile	Ala	Leu	Met	His	His
	290					295					300				
Leu	Met	Ala	Ala	Leu	Arg	Ala	His	Ser	Leu	Phe	His	Lys	Asp	Gln	His
305					310					315					320
Tyr	Val	Ile	Gln	Asp	Gly	Glu	Ile	Val	Ile	Val	Asp	Glu	Phe	Thr	Gly
				325					330					335	
Arg	Leu	Met	Ser	Gly	Arg	Arg	Trp	Ser	Glu	Gly	Leu	His	Gln	Ala	Val
			340					345					350		
Glu	Ala	Lys	Glu	Gly	Val	Glu	Ile	Lys	Arg	Glu	Asn	Gln	Thr	Leu	Ala
		355					360					365			
Ser	Ile	Thr	Phe	Gln	Asn	Tyr	Phe	Arg	Leu	Tyr	Thr	Lys	Leu	Ser	Gly
	370					375					380				
Met	Thr	Gly	Thr	Ala	Asp	Thr	Glu	Ala	Phe	Glu	Phe	Gln	Ser	Ile	Tyr
385					390					395					400
Asn	Leu	Glu	Thr	Val	Ile	Ile	Pro	Thr	Asn	Arg	Pro	Val	Gln	Arg	Lys
				405					410					415	
Asp	Phe	Asn	Asp	Gln	Ile	Phe	Arg	Ser	Ala	Glu	Glu	Lys	Phe	Glu	Ala
			420					425					430		
Val	Val	Lys	Asp	Ile	Glu	Glu	Cys	His	Lys	Arg	Gly	Gln	Pro	Val	Leu

435

440

445

Val Gly Thr Thr Ser Ile Glu Asn Ser Glu Leu Val Ser Lys Leu Leu
450 455 460
Thr Gln Ala Gly Leu Pro His Asn Val Leu Asn Ala Lys Glu His Glu
465 470 475 480
Arg Glu Ala Leu Ile Val Ala Gln Ala Gly Lys Val Gly Ala Ile Thr
485 490 495
Val Ala Thr Asn Met Ala Gly Arg Gly Thr Asp Ile Val Leu Gly Gly
500 505 510
Asn Leu Lys His Gln Thr Asp Ala Ile Arg Ala Asp Glu Thr Leu Ser
515 520 525
Asp Glu Glu Lys Gln Ala Gln Ile Ala Ala Leu Glu Asp Gly Trp Gln
530 535 540
Ala Glu His Asp Lys Val Met Glu Ala Gly Gly Leu His Ile Ile Gly
545 550 555 560
Thr Glu Arg His Glu Ser Arg Arg Ile Asp Asn Gln Leu Arg Gly Arg
565 570 575
Ser Gly Arg Gln Gly Asp Pro Gly Ser Ser Arg Phe Tyr Leu Ser Phe
580 585 590
Glu Asp Pro Leu Leu Arg Leu Phe Ala Leu Asp Arg Ala Ala Ala Ile
595 600 605
Leu Asn Arg Leu Ala Pro Glu Arg Gly Val Ala Ile Glu His Asn Leu
610 615 620
Leu Thr Arg Gln Ile Glu Gly Ala Gln Arg Lys Val Glu Gly Arg Asn
625 630 635 640
Phe Asp Met Arg Lys Gln Val Leu Glu Tyr Asp Asp Val Ala Asn Glu
645 650 655
Gln Arg Lys Val Ile Tyr Ser Gln Arg Asn Glu Ile Leu Thr Ser Lys
660 665 670
Asp Ile Ser Asp Leu Met Gln Glu Ile Arg Ser Asp Val Val Ser Asp
675 680 685
Leu Val Asp Thr Tyr Met Pro Pro Asp Ser Met Glu Glu Gln Trp Asp
690 695 700
Ile Pro Thr Leu Glu Asn Arg Leu Ala Ala Glu Phe Arg Leu His Glu
705 710 715 720
Asp Ile Gln Ser Trp Leu Lys Ala Asp Asn Ala Ile Asp Gly Gln Asp
725 730 735
Ile Lys Glu Arg Leu Ile Glu Arg Ile Glu Asn Glu Tyr Ala Ala Lys
740 745 750
Thr Glu Leu Val Gly Lys Gln Ala Met Ala Asp Phe Glu Arg Asn Val
755 760 765
Met Leu Gln Val Ile Asp Asn Gln Trp Arg Glu His Leu Ala Ala Met

770

775

780

Asp Tyr Leu Arg Gln Gly Ile His Leu Arg Ser Tyr Ala Gln Lys Asn
785 790 795 800
Pro Lys Gln Glu Tyr Lys Arg Glu Ala Phe Thr Met Phe Gln Asp Leu
805 810 815
Trp Asn Gly Ile Lys Phe His Ile Ala Ser Leu Leu Thr Ser Val Gln
820 825 830
Ile Glu Gln Asn Pro Val Ala Val Val Glu Glu Gln Pro Ile Gly Asn
835 840 845
Ile Gln Ser Ile His Ser Glu Ser Pro Asp Met Glu Glu Leu Leu Gly
850 855 860
Gln Ser Gln Thr Asp Leu Val Thr Glu Ala Phe Asn Pro Asp Gly Thr
865 870 875 880
Asp Phe Ser Pro Glu Ala Leu Glu Ala Arg Gly Gln Ile Val His Arg
885 890 895
Asn Asp Pro Cys Pro Cys Gly Ser Gly Leu Lys Tyr Lys Gln Cys His
900 905 910

Gly Lys Leu Ala
915

<210> 148
<211> 562
<212> PRT
<213> Neisseria meningitidis

<400> 148
Met Leu Asn Lys Asp Gln Phe Ala Asp Asn His Phe Ile Arg Thr Ile
1 5 10 15
Ile Glu Glu Asp Leu Glu Ser Gly Lys His Thr Ala Val Gln Thr Arg
20 25 30
Phe Pro Pro Glu Pro Asn Gly Tyr Leu His Ile Gly His Ala Lys Ser
35 40 45
Ile Cys Leu Asn Phe Gly Leu Ala Tyr Ile Tyr Asp Gly Leu Cys Asn
50 55 60
Leu Arg Phe Asp Asp Thr Asn Pro Glu Lys Glu Asn Asp Glu Tyr Val
65 70 75 80
Asn Ala Ile Lys Glu Asp Val Glu Trp Leu Gly Phe His Trp Ala Gly
85 90 95
Glu Pro Arg Phe Ala Ser Asn Tyr Phe Asp Gln Leu Tyr Asp Tyr Ala
100 105 110
Val Gly Leu Ile Lys Asp Gly Lys Ala Tyr Val Asp Asp Leu Thr Pro
115 120 125
Glu Glu Met Arg Glu Tyr Arg Gly Thr Leu Thr Glu Ala Gly Lys Asn
130 135 140
Ser Pro Tyr Arg Asp Arg Ser Val Glu Glu Asn Leu Asp Leu Phe Thr

SEQLIST_PP019737.0004.txt

145		150		155		160
Arg Met Lys Asn Gly Glu Phe Pro Asp Gly Ser Lys Thr Leu Arg Leu	165		170		175	
Lys Ile Asp Met Ala Ser Gly Asn Ile Asn Met Arg Asp Pro Val Ile	180		185		190	
Tyr Arg Ile Arg Arg Ala His His His Asn Thr Gly Asp Lys Trp Cys	195		200		205	
Ile Tyr Pro Met Tyr Asp Tyr Thr His Cys Ile Ser Asp Ala Ile Glu	210		215		220	
Gly Ile Thr His Ser Leu Cys Thr Leu Glu Phe Glu Ala His Arg Pro	225	230		235		240
Leu Tyr Asp Cys Val Leu Asp Asn Ile Pro Ala Pro His Ala Thr Arg	245		250		255	
Pro Arg Gln Tyr Glu Phe Ser Arg Leu Glu Leu Leu Tyr Thr Ile Thr	260		265		270	
Ser Lys Arg Lys Leu Asn Gln Leu Val Val Glu Lys His Val Ser Gly	275		280		285	
Trp Asp Asp Pro Arg Met Pro Thr Ile Ser Gly Met Arg Arg Arg Gly	290		295		300	
Tyr Thr Pro Glu Gly Leu Arg Leu Phe Ala Lys Arg Ala Gly Ile Ser	305	310		315		320
Lys Ser Glu Asn Ile Val Asp Met Ser Val Leu Glu Gly Ala Ile Arg	325		330		335	
Glu Glu Leu Glu Asn Ser Ala Pro Arg Leu Met Ala Val Leu Asn Pro	340		345		350	
Leu Lys Val Thr Leu Thr Asn Phe Glu Thr Gly Arg Thr Gln Ser Arg	355		360		365	
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Pro Ile Ser Gln Thr Ile Tyr Ile Glu Ala Asp Asp Phe Ala Glu Asn	385	390		395		400
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 Phe Asp Ile Ala Phe Thr Ser Val Leu Thr Arg Ala Ile Lys Thr Cys
 50 55 60
 Asn Ile Val Leu Glu Glu Ser Asp Gln Leu Phe Val Pro Gln Ile Lys
 65 70 75 80
 Thr Trp Arg Leu Asn Glu Arg His Tyr Gly Gln Leu Gln Gly Leu Asp
 85 90 95
 Lys Lys Gln Thr Ala Glu Gln Tyr Gly Asp Glu Gln Val Arg Ile Trp
 100 105 110
 Arg Arg Ser Tyr Asp Thr Leu Pro Pro Leu Leu Asp Lys Asp Asp Glu
 115 120 125
 Phe Ser Ala His Lys Asp Arg Arg Tyr Ala His Leu Pro Ala Asp Val
 130 135 140
 Val Pro Asp Gly Glu Asn Leu Lys Val Thr Leu Glu Arg Val Leu Pro
 145 150 155 160
 Phe Trp Glu Asp Gln Ile Ala Pro Ala Ile Leu Ser Gly Lys Arg Val
 165 170 175
 Leu Val Ala Ala His Gly Asn Ser Leu Arg Ala Leu Ala Lys His Ile
 180 185 190
 Glu Gly Ile Ser Asp Glu Asp Ile Met Gly Leu Glu Ile Pro Thr Gly
 195 200 205
 Gln Pro Leu Val Tyr Lys Leu Asp Asp Asn Leu Lys Val Ile Glu Lys
 210 215 220
 Phe Tyr Leu
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 <213> Neisseria meningitidis

<400> 156
 Met Gly Ile Tyr Asp Phe Gln Met Lys Asp Ala Glu Gly Asn Ala Val
 1 5 10 15
 Asp Leu Ser Gly Tyr Arg Gly Lys Val Leu Leu Ile Val Asn Thr Ala
 Page 211

20

25

30

Thr Arg Cys Gly Leu Thr Pro Gln Tyr Glu Ala Leu Gln Lys Leu Tyr
 35 40 45
 Ala Gln Tyr Thr Ala Glu Gly Leu Glu Ile Leu Asp Phe Pro Cys Asn
 50 55 60
 Gln Phe Arg Glu Gln Ala Pro Glu Ser Ser Gly Glu Ile Ala Gln Val
 65 70 75 80
 Cys Met Met Lys Phe Gly Thr Lys Phe Lys Ile Phe Asp Lys Ile Glu
 85 90 95
 Val Asn Gly Ala Asn Thr Ala Pro Leu Tyr Ala Tyr Leu Lys Ser Val
 100 105 110
 Lys Pro Gln Asp Lys Gly Asn His Leu Phe Lys Asp Phe Val Leu Lys
 115 120 125
 Leu Ala Ala Leu Gly Glu Lys Arg Asp Glu Gly Asp Ile Lys Trp Asn
 130 135 140
 Phe Thr Lys Phe Leu Val Asn Arg Asp Gly Glu Val Val Glu Arg Phe
 145 150 155 160
 Ala Pro Ser Val Thr Pro Glu Glu Ile Glu Ala Asp Ile Arg Ala Leu
 165 170 175

Leu

<210> 157
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 <212> PRT
 <213> Neisseria meningitidis

<400> 157
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 Leu Phe Ser Ser Ala Ala Gln Ala Ala Ser Glu Asp Ser Ser Arg Ser
 20 25 30
 Pro Tyr Tyr Val Gln Ala Asp Leu Ala Tyr Ala Ala Glu Arg Ile Thr
 35 40 45
 His Asp Tyr Pro Lys Pro Thr Gly Thr Asp Lys Asp Lys Ile Ser Thr
 50 55 60
 Val Ser Asp Tyr Phe Arg Asn Ile Arg Ala His Ser Tyr His Pro Arg
 65 70 75 80
 Val Ser Val Gly Tyr Asp Phe Gly Gly Trp Arg Ile Ala Ala Asp Tyr
 85 90 95
 Ala Ser Tyr Arg Lys Trp Asn Asn Asn Lys Tyr Ser Val Asn Ile Lys
 100 105 110
 Lys Gly Arg Glu Thr Gln Asp Asn Arg Glu Glu Leu Lys Thr Glu Asn
 115 120 125
 Gln Glu Asn Gly Ser Phe His Ala Ala Ser Ser Leu Gly Leu Ser Ala

130

135

140

Ile Tyr Asp Phe Lys Leu Asn Asp Lys Phe Asp Lys Phe Lys Pro Tyr
145 150 155 160

Ile Gly Ala Arg Val Ala Tyr Gly His Val Lys His Gln Val His Ser
165 170 175

Val Glu Thr Lys Thr Thr Ile Val Thr Ser Lys Pro Ala Ala Thr Ser
180 185 190

Pro Gln Gly Gly Pro Ile Ile Glu Thr
195 200

<210> 158

<211> 368

<212> PRT

<213> Neisseria meningitidis

<400> 158

Met Ser Leu Tyr Pro Ile Tyr Asn Phe Ser Ala Gly Pro Ala Val Leu
1 5 10 15

Pro Glu Ala Val Leu Glu Thr Ala Arg Gln Glu Met Leu Asp Tyr Asn
20 25 30

Gly Thr Gly Phe Pro Val Met Ala Met Ser His Arg Ser Glu Met Phe
35 40 45

Leu Ser Ile Leu His His Ala Glu Gln Asp Leu Arg Gln Leu Leu Lys
50 55 60

Val Pro Asp Asn Tyr Lys Ile Leu Phe Leu Gln Gly Gly Ala Thr Thr
65 70 75 80

Gln Phe Asn Met Ala Ala Met Asn Leu Ala His Gly Phe Arg Thr Ala
85 90 95

Asp Ala Val Val Thr Gly Asn Trp Ser Arg Ile Ala Tyr Glu Gln Met
100 105 110

Ser Arg Leu Thr Asp Thr Glu Ile Arg Leu Ala Ala His Gly Gly Glu
115 120 125

Gln Phe Asp Tyr Leu Asp Leu Pro Pro Val Glu Thr Trp Asp Val Ala
130 135 140

Pro Asp Ser Ala Phe Val His Phe Ala Val Asn Glu Thr Val Asn Gly
145 150 155 160

Leu Gln Tyr Arg Glu Val Pro Cys Leu Ser Glu Gly Met Pro Pro Leu
165 170 175

Val Cys Asp Met Ser Ser Glu Ile Leu Ser Arg Glu Phe Asp Val Ala
180 185 190

Asp Tyr Gly Leu Ile Tyr Ala Gly Ala Gln Lys Asn Ile Gly Pro Ala
195 200 205

Gly Val Thr Val Val Ile Val Arg Glu Asp Leu Leu Glu Arg Cys Pro
210 215 220

Asn Asp Ile Pro Asp Val Phe Asn Tyr Arg Ser His Ile Asn Arg Asp
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225 230 235 240

<210>	159																
<211>	500																
<212>	PRT																
<213>	Neisseria meningitidis																
<400>	159																
Met Ser Arg Glu Met Leu Gln Leu Ala Glu Ala Leu Ala Ser Glu Lys	1	5	10	15													
Asn Val Asp Ala Glu Val Val Phe Gln Ala Leu Glu Phe Ala Leu Ser	20	25	30														
Thr Ala Ala Lys Lys Lys Ala Asp Arg Glu His Met Asp Val Arg Val	35	40	45														
Gln Ile Asn Arg Asp Thr Gly Glu Tyr Gln Thr Phe Arg Arg Trp Leu	50	55	60														
Ile Val Ala Asp Glu Asp Tyr Thr Tyr Pro Asp Val Glu Lys Thr Ile	65	70	75														
Glu Glu Ile Gln Glu Glu Ile Pro Gly Thr Thr Ile Gln Ile Gly Glu	85	90	95														
Tyr Tyr Glu Glu Gln Leu Pro Asn Glu Gly Phe Gly Arg Gln Ala Ala	100	105	110														
Gln Thr Ala Lys Gln Ile Ile Leu Gln Arg Ile Arg Asp Ala Glu Arg	115	120	125														
Glu Gln Asn Leu Asn Glu Phe Leu Ala Val Lys Glu Asp Ile Val Ser	130	135	140														
Gly Thr Val Lys Arg Val Glu Arg His Gly Ile Ile Val Glu Val Val	145	150	155	160													

SEQLIST_PP019737.0004.txt

Ala Gly Lys Leu Asp Ala Leu Ile Pro Arg Asp Gln Met Ile Pro Arg
165 170 175

Glu Asn Phe Arg Ser Gly Asp Arg Ile Arg Ala Leu Phe Leu Arg Val
180 185 190

Glu Glu Ile Gly Asn Thr Gly Arg Lys Gln Val Ile Leu Ser Arg Thr
195 200 205

Ser Gly Asp Phe Leu Val Lys Leu Tyr Ala Asn Glu Val Pro Glu Ile
210 215 220

Ala Asp Gly Met Leu Glu Ile Arg Ala Val Ala Arg Asp Pro Gly Gln
225 230 235 240

Arg Ala Lys Val Ala Val Lys Ala Asn Asp Gln Arg Ile Asp Pro Gln
245 250 255

Gly Thr Cys Ile Gly Val Arg Gly Ser Arg Val Asn Ala Val Ser Asn
260 265 270

Glu Leu Ser Gly Glu Arg Ile Asp Val Val Leu Trp Ser Pro Glu Pro
275 280 285

Ala Gln Phe Val Met Ser Ala Leu Ser Pro Ala Glu Val Ser Arg Ile
290 295 300

Val Ile Asp Glu Asp Lys His Ala Val Asp Val Ile Val Ala Glu Asp
305 310 315 320

Gln Leu Ala Leu Ala Ile Gly Arg Gly Gly Gln Asn Val Arg Leu Ala
325 330 335

Ser Asp Leu Thr Gly Trp Gln Leu Asn Ile Met Thr Ser Ala Glu Ala
340 345 350

Asp Glu Arg Asn Ala Ala Glu Asp Ala Ala Ile Arg Arg Leu Phe Met
355 360 365

Asp His Leu Asn Val Asp Glu Glu Thr Ala Asp Val Leu Val Gln Glu
370 375 380

Gly Phe Ala Thr Leu Glu Glu Val Ala Tyr Val Pro Ala Ala Glu Leu
385 390 395 400

Leu Ala Ile Glu Gly Phe Asp Glu Glu Ile Val Asp Met Leu Arg Asn
405 410 415

Arg Ala Arg Asp Ala Ile Leu Thr Met Ala Ile Ala Ala Glu Glu Lys
420 425 430

Leu Gly Glu Val Ser Asp Asp Met Arg Asn Leu Glu Gly Ile Asp Ala
435 440 445

Asp Met Leu Arg Ser Leu Ala Glu Ala Gly Ile Thr Thr Arg Asp Asp
450 455 460

Leu Ala Glu Leu Ala Val Asp Glu Leu Ile Glu Ile Thr Gly Val Asn
465 470 475 480

Glu Glu Thr Ala Lys Ala Val Ile Leu Thr Ala Arg Glu His Trp Phe
485 490 495

Thr Glu Asp Lys
500

<210> 160
<211> 303
<212> PRT
<213> Neisseria meningitidis

<400> 160
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1 5 10 15
Arg Asp Ile Leu Arg Phe Ala Val Ser Arg Phe Asn Glu Ala Gly Leu
20 25 30
Phe Phe Gly His Gly Thr Asp Asn Ala His Asp Glu Ala Ala Tyr Leu
35 40 45
Ile Leu His Thr Leu Asn Leu Pro Leu Asp Met Leu Ala Pro Tyr Leu
50 55 60
Asp Ala Lys Leu Leu Glu Ala Glu Lys Glu Glu Val Leu Ala Val Ile
65 70 75 80
Glu Arg Arg Ala Val Glu His Ile Pro Ala Ala Tyr Leu Thr His Gln
85 90 95
Ala Trp Gln Gly Glu Phe Asp Phe Tyr Val Asp Glu Arg Val Ile Ile
100 105 110
Pro Arg Ser Phe Ile Tyr Glu Leu Leu Gly Asp Gly Leu Arg Pro Trp
115 120 125
Ile Glu Tyr Asp Glu Leu Val His Asn Ala Leu Asp Leu Cys Thr Gly
130 135 140
Ser Gly Cys Leu Ala Ile Gln Met Ala His His Tyr Pro Asp Ala Gln
145 150 155 160
Ile Asp Ala Val Asp Val Ser Leu Asp Ala Leu Glu Val Ala Gly Ile
165 170 175
Asn Val Glu Asp Tyr Gly Leu Glu Glu Arg Ile Arg Leu Ile His Thr
180 185 190
Asp Leu Phe Glu Gly Leu Glu Gly Thr Tyr Asp Leu Ile Val Ser Asn
195 200 205
Pro Pro Tyr Val Asp Ala Glu Ser Val Glu Leu Leu Pro Glu Glu Tyr
210 215 220
Leu His Glu Pro Glu Leu Ala Leu Gly Ser Gly Ala Asp Gly Leu Asp
225 230 235 240
Ala Thr Arg Gln Ile Leu Leu Asn Ala Ala Lys Phe Leu Asn Pro Lys
245 250 255
Gly Val Leu Leu Val Glu Ile Gly His Asn Arg Asp Val Leu Glu Ala
260 265 270
Ala Tyr Pro Glu Leu Pro Phe Thr Trp Leu Glu Thr Ser Gly Gly Asp
275 280 285

Gly Phe Val Phe Leu Leu Thr Arg Glu Gln Leu Leu Gly Glu Glu
290 295 300

<210> 161
<211> 431
<212> PRT
<213> Neisseria meningitidis

<400> 161
Met Leu Asp Ile Gln Leu Leu Arg Ser Asn Thr Ala Ala Val Ala Glu
1 5 10 15

Arg Leu Ala Arg Arg Gly Tyr Asp Phe Asp Thr Ala Arg Phe Asp Thr
20 25 30

Leu Glu Glu Arg Arg Lys Ser Val Gln Val Lys Thr Glu Glu Leu Gln
35 40 45

Ala Ser Arg Asn Ser Ile Ser Lys Gln Ile Gly Ala Leu Lys Gly Gln
50 55 60

Gly Lys His Glu Glu Ala Gln Ala Ala Met Asn Gln Val Ala Gln Ile
65 70 75 80

Lys Thr Asp Leu Glu Gln Ala Ala Ala Asp Leu Asp Ala Val Gln Lys
85 90 95

Glu Leu Asp Ala Trp Leu Leu Ser Ile Pro Asn Leu Pro His Glu Ser
100 105 110

Val Pro Ala Gly Lys Asp Glu Thr Glu Asn Val Glu Val Arg Lys Val
115 120 125

Gly Thr Pro Arg Glu Phe Asp Phe Glu Ile Lys Asp His Val Asp Leu
130 135 140

Gly Glu Pro Leu Gly Leu Asp Phe Glu Gly Gly Ala Lys Leu Ser Gly
145 150 155 160

Ala Arg Phe Thr Val Met Arg Gly Gln Ile Ala Arg Leu His Arg Ala
165 170 175

Leu Ala Gln Phe Met Leu Asp Thr His Thr Leu Gln His Gly Tyr Thr
180 185 190

Glu His Tyr Thr Pro Tyr Ile Val Asp Asp Thr Thr Leu Gln Gly Thr
195 200 205

Gly Gln Leu Pro Lys Phe Ala Glu Asp Leu Phe His Val Thr Arg Gly
210 215 220

Gly Asp Glu Thr Lys Thr Thr Gln Tyr Leu Ile Pro Thr Ala Glu Val
225 230 235 240

Thr Leu Thr Asn Thr Val Ala Asp Ser Ile Ile Pro Ser Glu Gln Leu
245 250 255

Pro Leu Lys Leu Thr Ala His Ser Pro Cys Phe Arg Ser Glu Ala Gly
260 265 270

Ser Tyr Gly Lys Asp Thr Arg Gly Leu Ile Arg Gln His Gln Phe Asp
275 280 285

SEQLIST_PP019737.0004.txt

Lys Val Glu Met Val Gln Ile Val His Pro Glu Lys Ser Tyr Glu Thr
290 295 300

Leu Glu Glu Met Val Gly His Ala Glu Asn Ile Leu Lys Ala Leu Glu
305 310 315 320

Leu Pro Tyr Arg Val Ile Thr Leu Cys Thr Gly Asp Met Gly Phe Gly
325 330 335

Ala Ala Lys Thr Tyr Asp Leu Glu Val Trp Val Pro Ala Gln Asn Thr
340 345 350

Tyr Arg Glu Ile Ser Ser Cys Ser Asn Cys Glu Asp Phe Gln Ala Arg
355 360 365

Arg Leu Lys Ala Arg Phe Lys Asp Glu Asn Gly Lys Asn Arg Leu Val
370 375 380

His Thr Leu Asn Gly Ser Gly Leu Ala Val Gly Arg Thr Leu Val Ala
385 390 395 400

Val Leu Glu Asn His Gln Asn Ala Asp Gly Ser Ile Asn Ile Pro Ala
405 410 415

Ala Leu Gln Pro Tyr Met Gly Gly Val Ala Lys Leu Glu Val Lys
420 425 430

<210> 162

<211> 285

<212> PRT

<213> Neisseria meningitidis

<400> 162

Met Ala Arg His Val Trp Gln Ala Gly Arg Phe Glu Ile Gly Leu Asp
1 5 10 15

Lys Pro Lys Ile Met Gly Ile Val Asn Leu Thr Pro Asp Ser Phe Ser
20 25 30

Asp Gly Gly Val Tyr Ser Gln Asn Ala Gln Thr Ala Leu Ala His Ala
35 40 45

Glu Gln Leu Leu Lys Glu Gly Ala Asp Ile Leu Asp Ile Gly Gly Glu
50 55 60

Ser Thr Arg Ser Gly Ala Asp Tyr Val Ser Pro Glu Glu Glu Trp Ala
65 70 75 80

Arg Val Glu Pro Val Leu Ala Glu Val Ala Gly Trp Gly Val Pro Ile
85 90 95

Ser Leu Asp Thr Arg Arg Thr Val Ile Met Glu Lys Ala Leu Ala Leu
100 105 110

Gly Gly Ile Asp Ile Ile Asn Asp Val Ala Ala Leu Asn Asp Glu Gly
115 120 125

Ala Val Glu Leu Leu Ala Arg Gln Ala Asp Thr Gly Ile Cys Leu Met
130 135 140

His Met Gln Gly Leu Pro Lys Thr Met Gln Ile Asn Pro Lys Tyr Gln
145 150 155 160

SEQLIST_PP019737.0004.txt

Asp Val Val Gly Glu Val Ala Arg Tyr Leu Lys Ala Arg Ser Ala Glu
165 170 175

Cys Ile Ala Ala Gly Ile Ala Pro Gln Arg Ile Ile Leu Asp Pro Gly
180 185 190

Phe Gly Ser Gly Phe Gly Lys Pro Leu Gln His Asn Ile Ala Leu Met
195 200 205

Arg His Leu Pro Glu Leu Met Ala Glu Thr Gly Phe Pro Leu Leu Ile
210 215 220

Gly Val Ser Arg Lys Ser Thr Ile Gly Glu Leu Thr Gly Glu Ala Asn
225 230 235 240

Ala Ala Glu Arg Val His Gly Ser Val Ala Ala Ala Leu Ala Ser Val
245 250 255

Ala Arg Gly Ala Gln Ile Val Arg Val His Asp Val Lys Ala Thr Ala
260 265 270

Asp Ala Leu Lys Val Trp Glu Ala Leu Gly Ile Asn Leu
275 280 285

<210> 163
<211> 444
<212> PRT
<213> Neisseria meningitidis

<400> 163
Met Thr Asp Leu Asn Thr Leu Phe Ala Asn Leu Lys Gln Arg Asn Pro
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Asn Gln Glu Pro Phe His Gln Ala Val Glu Glu Val Phe Met Ser Leu
20 25 30

Asp Pro Phe Leu Ala Lys Asn Pro Lys Tyr Thr Gln Gln Ser Leu Leu
35 40 45

Glu Arg Ile Val Glu Pro Glu Arg Val Val Met Phe Arg Val Thr Trp
50 55 60

Gln Asp Asp Lys Gly Gln Val Gln Val Asn Arg Gly Tyr Arg Val Gln
65 70 75 80

Met Ser Ser Ala Ile Gly Pro Tyr Lys Gly Gly Leu Arg Phe His Pro
85 90 95

Thr Val Asp Leu Gly Val Leu Lys Phe Leu Ala Phe Glu Gln Val Phe
100 105 110

Lys Asn Ala Leu Thr Thr Leu Pro Met Gly Gly Gly Lys Gly Gly Ser
115 120 125

Asp Phe Asp Pro Lys Gly Lys Ser Asp Ala Glu Val Met Arg Phe Cys
130 135 140

Gln Ala Phe Met Thr Glu Leu Tyr Arg His Ile Gly Ala Asp Thr Asp
145 150 155 160

Val Pro Ala Gly Asp Ile Gly Val Gly Gly Arg Glu Ile Gly Tyr Leu
165 170 175

SEQLIST_PP019737.0004.txt

Phe Gly Gln Tyr Lys Lys Ile Arg Asn Glu Phe Ser Ser Val Leu Thr
180 185 190

Gly Lys Gly Leu Glu Trp Gly Gly Ser Leu Ile Arg Pro Glu Ala Thr
195 200 205

Gly Tyr Gly Cys Val Tyr Phe Ala Gln Ala Met Leu Gln Thr Arg Asn
210 215 220

Asp Ser Phe Glu Gly Lys Arg Val Leu Ile Ser Gly Ser Gly Asn Val
225 230 235 240

Ala Gln Tyr Ala Ala Glu Lys Ala Ile Gln Leu Gly Ala Lys Val Leu
245 250 255

Thr Val Ser Asp Ser Asn Gly Phe Val Leu Phe Pro Asp Ser Gly Met
260 265 270

Thr Glu Ala Gln Leu Ala Ala Leu Ile Glu Leu Lys Glu Val Arg Arg
275 280 285

Glu Arg Val Ala Thr Tyr Ala Lys Glu Gln Gly Leu Gln Tyr Phe Glu
290 295 300

Lys Gln Lys Pro Trp Gly Val Ala Ala Glu Ile Ala Leu Pro Cys Ala
305 310 315 320

Thr Gln Asn Glu Leu Asp Glu Glu Ala Ala Lys Thr Leu Leu Ala Asn
325 330 335

Gly Cys Tyr Val Val Ala Glu Gly Ala Asn Met Pro Ser Thr Leu Gly
340 345 350

Ala Val Glu Gln Phe Ile Lys Ala Gly Ile Leu Tyr Ala Pro Gly Lys
355 360 365

Ala Ser Asn Ala Gly Gly Val Ala Thr Ser Gly Leu Glu Met Ser Gln
370 375 380

Asn Ala Ile Arg Leu Ser Trp Thr Arg Glu Glu Val Asp Gln Arg Leu
385 390 395 400

Phe Gly Ile Met Gln Ser Ile His Glu Ser Cys Leu Lys Tyr Gly Lys
405 410 415

Val Gly Asp Thr Val Asn Tyr Val Asn Gly Ala Asn Ile Ala Gly Phe
420 425 430

Val Lys Val Ala Asp Ala Met Leu Ala Gln Gly Phe
435 440

<210> 164
<211> 412
<212> PRT
<213> Neisseria meningitidis

<400> 164
Met Ala Phe Tyr Ala Phe Lys Ala Met Arg Ala Ala Ala Leu Ala Ala
1 5 10 15

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20 25 30

SEQLIST_PP019737.0004.txt

Gln Gly Gly Gln Pro Ala Gly Arg Glu Ala Pro Ala Pro Val Val Gly
35 40 45

Val Val Thr Val His Pro Gln Thr Val Ala Leu Thr Val Glu Leu Pro
50 55 60

Gly Arg Leu Glu Ser Leu Arg Thr Ala Asp Val Arg Ala Gln Val Gly
65 70 75 80

Gly Ile Ile Gln Lys Arg Leu Phe Gln Glu Gly Ser Tyr Val Arg Ala
85 90 95

Gly Gln Pro Leu Tyr Gln Ile Asp Ser Ser Thr Tyr Glu Ala Gly Leu
100 105 110

Glu Ser Ala Arg Ala Gln Leu Ala Thr Ala Gln Ala Thr Leu Ala Lys
115 120 125

Ala Asp Ala Asp Leu Ala Arg Tyr Lys Pro Leu Val Ala Ala Glu Ala
130 135 140

Val Ser Arg Gln Glu Tyr Asp Ala Ala Val Thr Ala Lys Arg Ser Ala
145 150 155 160

Glu Ala Gly Val Lys Ala Ala Gln Ala Ala Ile Lys Ser Ala Gly Ile
165 170 175

Ser Leu Asn Arg Ser Arg Ile Thr Ala Pro Ile Ser Gly Phe Ile Gly
180 185 190

Gln Ser Lys Val Ser Glu Gly Thr Leu Leu Asn Ala Gly Asp Ala Thr
195 200 205

Val Leu Ala Thr Ile Arg Gln Thr Asn Pro Met Tyr Val Asn Val Thr
210 215 220

Gln Ser Ala Ser Glu Val Met Lys Leu Arg Arg Gln Ile Ala Glu Gly
225 230 235 240

Lys Leu Leu Ala Ala Asp Gly Val Ile Ala Val Gly Ile Lys Phe Asp
245 250 255

Asp Gly Thr Val Tyr Pro Glu Lys Gly Arg Leu Leu Phe Ala Asp Pro
260 265 270

Ala Val Asn Glu Ser Thr Gly Gln Ile Thr Leu Arg Ala Ala Val Pro
275 280 285

Asn Asp Gln Asn Ile Leu Met Pro Gly Leu Tyr Val Arg Val Leu Met
290 295 300

Asp Gln Val Ala Val Asp Asn Ala Phe Val Val Pro Gln Gln Ala Val
305 310 315 320

Thr Arg Gly Ala Lys Asp Thr Val Met Ile Val Asn Ala Gln Gly Gly
325 330 335

Met Glu Pro Arg Glu Val Thr Val Ala Gln Gln Gln Gly Thr Asn Trp
340 345 350

Ile Val Thr Ser Gly Leu Lys Asp Gly Asp Lys Val Val Val Glu Gly
355 360 365

SEQLIST_PP019737.0004.txt

Ile Ser Ile Ala Gly Ile Thr Gly Ala Lys Lys Val Thr Pro Lys Glu
370 375 380

Trp Ala Ser Ser Glu Asn Gln Ala Ala Ala Pro Gln Ser Gly Val Gln
385 390 395 400

Thr Ala Ser Glu Ala Lys Pro Ala Ser Glu Ala Lys
405 410

<210> 165

<211> 190

<212> PRT

<213> Neisseria meningitidis

<400> 165

Met Ile Met Ala Lys Lys Ile Ser Ile Leu Val Gly Ser Leu Arg Arg
1 5 10 15

Ala Ser Phe Ala Arg Lys Val Ala Leu Asn Ala Ala Glu Met Phe Pro
20 25 30

Glu Gly Trp Gln Ala Glu Ile Val Glu Ile Gly His Leu Pro Leu Tyr
35 40 45

Asn Phe Asp Tyr Asp Asp Pro Ala Val Glu Asp Val Pro Leu Pro Glu
50 55 60

Ser Tyr Thr Ala Phe Arg Glu Thr Ile Lys Ala Ser Asp Gly Ile Leu
65 70 75 80

Phe Val Thr Ser Glu Asn Asn Arg Thr Ile Pro Ala Cys Leu Lys Asn
85 90 95

Ala Val Asp Ile Gly Ser Lys Pro Asn Ala Asp Val Ala Trp Lys Asn
100 105 110

Lys Pro Ala Gly Ile Ile Ser His Ser Val Gly Lys Met Gly Gly Tyr
115 120 125

Ser Ser Gln Lys Asn Leu Arg Leu Ala Leu Ser Tyr Phe Asp Met Pro
130 135 140

Val Thr Gly Gln Pro Glu Val Phe Leu Gly Asn Ser Pro Thr Leu Phe
145 150 155 160

Asp Glu Asn Gly Lys Leu Ile Asp Ser Ala Arg Asp Phe Val Gln Ser
165 170 175

Tyr Ile Asn Gln Phe Val Gly Leu Ile Glu Arg Asn Ala Lys
180 185 190

<210> 166

<211> 199

<212> PRT

<213> Neisseria meningitidis

<400> 166

Met Asn Asn Leu Ile Lys Ile Asn Leu Leu Pro Tyr Arg Glu Glu Met
1 5 10 15

Asn Lys Arg Lys Gln Gln Gln Phe Lys Thr Leu Met Tyr Gly Ala Val
20 25 30

SEQLIST_PP019737.0004.txt

Leu Thr Gly Val Ala Ala Val Ala Ala Thr Tyr Leu Phe Ile Asp Asn
35 40 45

Met Ile Asn Asn Gln Ser Glu Arg Asn Thr Leu Leu Glu Thr Ser Ile
50 55 60

Ala His Leu Asp Thr Glu Leu Ser Glu Ile Gln Lys Leu Lys Gln Glu
65 70 75 80

Lys Asp Ala Phe Leu Ile Lys Lys Asn Lys Ile Glu Glu Leu Gln Leu
85 90 95

Lys Arg Leu Gln Ala Ala Lys Ile Leu Asp Ser Leu Asn Glu Ala Val
100 105 110

Pro Gly Ser Thr Tyr Leu Thr Ser Leu Asp Ala Val Thr Ala Asp Ser
115 120 125

Tyr Arg Leu Ser Gly Arg Thr Ser Ser Asp Asn Arg Val Ala Ala Met
130 135 140

Met Arg Ala Met Pro Asn Thr Gly Ile Phe Lys Gln Pro Glu Leu Leu
145 150 155 160

Ser Ile Lys Lys Asn Asn Ser His Gln Glu Phe Thr Leu Gln Ala Thr
165 170 175

Leu Gln Pro Ile Val Lys Ala Ala Glu Ser Lys Glu Asn Pro Ala Ser
180 185 190

Gly Asn Ala Gln Glu Ala Asn
195

<210> 167
<211> 215
<212> PRT
<213> Neisseria meningitidis

<400> 167
Met Ala Ser Lys Ser Ser Lys Thr Asn Leu Asp Leu Asn Asn Leu His
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20 25 30

Ala Val Leu Gly Leu Gly Tyr Ala Gly Leu Phe Lys Ser Gln Met Glu
35 40 45

Ser Leu Glu Glu Tyr Glu Ala Lys Glu Thr Glu Leu Lys Asn Thr Tyr
50 55 60

Lys Gln Lys Ser Ile Asp Ala Ala Ser Leu Asn Asn Leu Arg Asp Glu
65 70 75 80

Leu Ala Ser Ile Arg Ser Ala Phe Asp Ile Met Leu Lys Gln Leu Pro
85 90 95

Thr Asp Ala Glu Ile Pro Asn Leu Val Gln Glu Leu His Gln Ala Gly
100 105 110

Ser Ser Asn Gly Leu Arg Leu Asp Ser Val Met Pro Gln Pro Pro Val
115 120 125

SEQLIST_PP019737.0004.txt

Asp Asp Gly Pro Ile Lys Arg Leu Pro Tyr Ser Ile Ser Ile Thr Gly
 130 135 140
 Asn Tyr Glu Gln Ile Ser Gln Phe Thr Arg Asp Val Gly Ser Leu Ser
 145 150 155 160
 Arg Ile Ile Thr Leu Glu Ser Leu Lys Ile Ala Gln Ser Pro Glu Asn
 165 170 175
 Gly Gly Asn Pro Asp Gly Lys Ser Ser Ile Leu Asn Leu Ser Ala Ile
 180 185 190
 Ala Thr Thr Tyr Gln Ala Lys Ser Val Glu Glu Leu Ala Ala Glu Ala
 195 200 205
 Ala Gln Asn Ala Glu Gln Lys
 210 215

<210> 168
 <211> 181
 <212> PRT
 <213> Neisseria meningitidis

<400> 168
 Met Lys His Tyr Ala Leu Leu Ile Ser Phe Leu Ala Leu Ser Ala Cys
 1 5 10 15
 Ser Gln Gly Ser Glu Asp Leu Asn Glu Trp Met Ala Gln Thr Arg Arg
 20 25 30
 Glu Ala Lys Ala Glu Ile Ile Pro Phe Gln Ala Pro Thr Leu Pro Val
 35 40 45
 Ala Pro Val Tyr Ser Pro Pro Gln Leu Thr Gly Pro Asn Ala Phe Asp
 50 55 60
 Phe Arg Arg Met Glu Thr Asp Lys Lys Gly Glu Asn Ala Pro Asp Thr
 65 70 75 80
 Lys Arg Ile Lys Glu Thr Leu Glu Lys Phe Ser Leu Glu Asn Met Arg
 85 90 95
 Tyr Val Gly Ile Leu Lys Ser Gly Gln Lys Val Ser Gly Phe Ile Glu
 100 105 110
 Ala Glu Gly Tyr Val Tyr Thr Val Gly Val Gly Asn Tyr Leu Gly Gln
 115 120 125
 Asn Tyr Gly Arg Ile Glu Ser Ile Thr Asp Asp Ser Ile Val Leu Asn
 130 135 140
 Glu Leu Ile Glu Asp Ser Thr Gly Asn Trp Val Ser Arg Lys Ala Glu
 145 150 155 160
 Leu Leu Leu Asn Ser Ser Asp Lys Asn Thr Glu Gln Ala Ala Ala Pro
 165 170 175
 Ala Ala Glu Gln Asn
 180

<210> 169
 <211> 769
 <212> PRT

<213> Neisseria meningitidis

<400> 169

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Met Asn Thr Lys Leu Thr Lys Ile Ile Ser Gly Leu Phe Val Ala Thr
1      5      10      15
Ala Ala Phe Gln Thr Ala Ser Ala Gly Asn Ile Thr Asp Ile Lys Val
20      25      30
Ser Ser Leu Pro Asn Lys Gln Lys Ile Val Lys Val Ser Phe Asp Lys
35      40      45
Glu Ile Val Asn Pro Thr Gly Phe Val Thr Ser Ser Pro Ala Arg Ile
50      55      60
Ala Leu Asp Phe Glu Gln Thr Gly Ile Ser Met Asp Gln Gln Val Leu
65      70      75      80
Glu Tyr Ala Asp Pro Leu Leu Ser Lys Ile Ser Ala Ala Gln Asn Ser
85      90      95
Ser Arg Ala Arg Leu Val Leu Asn Leu Asn Lys Pro Gly Gln Tyr Asn
100     105     110
Thr Glu Val Arg Gly Asn Lys Val Trp Ile Phe Ile Asn Glu Ser Asp
115     120     125
Asp Thr Val Ser Ala Pro Ala Arg Pro Ala Val Lys Ala Ala Pro Ala
130     135     140
Ala Pro Ala Lys Gln Gln Ala Ala Ala Pro Ser Thr Lys Ser Ala Val
145     150     155     160
Ser Val Ser Glu Pro Phe Thr Pro Ala Lys Gln Gln Ala Ala Ala Pro
165     170     175
Phe Thr Glu Ser Val Val Ser Val Ser Ala Pro Phe Ser Pro Ala Lys
180     185     190
Gln Gln Ala Ala Ala Ser Ala Lys Gln Gln Ala Ala Ala Pro Ala Lys
195     200     205
Gln Gln Ala Ala Ala Pro Ala Lys Gln Gln Ala Ala Ala Pro Ala Lys
210     215     220
Gln Thr Asn Ile Asp Phe Arg Lys Asp Gly Lys Asn Ala Gly Ile Ile
225     230     235     240
Glu Leu Ala Ala Leu Gly Phe Ala Gly Gln Pro Asp Ile Ser Gln Gln
245     250     255
His Asp His Ile Ile Val Thr Leu Lys Asn His Thr Leu Pro Thr Thr
260     265     270
Leu Gln Arg Ser Leu Asp Val Ala Asp Phe Lys Thr Pro Val Gln Lys
275     280     285
Val Thr Leu Lys Arg Leu Asn Asn Asp Thr Gln Leu Ile Ile Thr Thr
290     295     300
Ala Gly Asn Trp Glu Leu Val Asn Lys Ser Ala Ala Pro Gly Tyr Phe
305     310     315     320

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SEQLIST_PP019737.0004.txt

Thr Phe Gln Val Leu Pro Lys Lys Gln Asn Leu Glu Ser Gly Gly Val
325 330 335

Asn Asn Ala Pro Lys Thr Phe Thr Gly Arg Lys Ile Ser Leu Asp Phe
340 345 350

Gln Asp Val Glu Ile Arg Thr Ile Leu Gln Ile Leu Ala Lys Glu Ser
355 360 365

Gly Met Asn Ile Val Ala Ser Asp Ser Val Asn Gly Lys Met Thr Leu
370 375 380

Ser Leu Lys Asp Val Pro Trp Asp Gln Ala Leu Asp Leu Val Met Gln
385 390 395 400

Ala Arg Asn Leu Asp Met Arg Gln Gln Gly Asn Ile Val Asn Ile Ala
405 410 415

Pro Arg Asp Glu Leu Leu Ala Lys Asp Lys Ala Leu Leu Gln Ala Glu
420 425 430

Lys Asp Ile Ala Asp Leu Gly Ala Leu Tyr Ser Gln Asn Phe Gln Leu
435 440 445

Lys Tyr Lys Asn Val Glu Glu Phe Arg Ser Ile Leu Arg Leu Asp Asn
450 455 460

Ala Asp Thr Thr Gly Asn Arg Asn Thr Leu Ile Ser Gly Arg Gly Ser
465 470 475 480

Val Leu Ile Asp Pro Ala Thr Asn Thr Leu Ile Val Thr Asp Thr Arg
485 490 495

Ser Val Ile Glu Lys Phe Arg Lys Leu Ile Asp Glu Leu Asp Val Pro
500 505 510

Ala Gln Gln Val Met Ile Glu Ala Arg Ile Val Glu Ala Ala Asp Gly
515 520 525

Phe Ser Arg Asp Leu Gly Val Lys Phe Gly Ala Thr Gly Lys Lys Lys
530 535 540

Leu Lys Asn Asp Thr Ser Ala Phe Gly Trp Gly Val Asn Ser Gly Phe
545 550 555 560

Gly Gly Asp Asp Lys Trp Gly Ala Glu Thr Lys Ile Asn Leu Pro Ile
565 570 575

Thr Ala Ala Ala Asn Ser Ile Ser Leu Val Arg Ala Ile Ser Ser Gly
580 585 590

Ala Leu Asn Leu Glu Leu Ser Ala Ser Glu Ser Leu Ser Lys Thr Lys
595 600 605

Thr Leu Ala Asn Pro Arg Val Leu Thr Gln Asn Arg Lys Glu Ala Lys
610 615 620

Ile Glu Ser Gly Tyr Glu Ile Pro Phe Thr Val Thr Ser Ile Ala Asn
625 630 635 640

Gly Gly Ser Ser Thr Asn Thr Glu Leu Lys Lys Ala Val Leu Gly Leu
645 650 655

SEQLIST_PP019737.0004.txt

Thr Val Thr Pro Asn Ile Thr Pro Asp Gly Gln Ile Ile Met Thr Val
660 665 670
Lys Ile Asn Lys Asp Ser Pro Ala Gln Cys Ala Ser Gly Asn Gln Thr
675 680 685
Ile Leu Cys Ile Ser Thr Lys Asn Leu Asn Thr Gln Ala Met Val Glu
690 695 700
Asn Gly Gly Thr Leu Ile Val Gly Gly Ile Tyr Glu Glu Asp Asn Gly
705 710 715 720
Asn Thr Leu Thr Lys Val Pro Leu Leu Gly Asp Ile Pro Val Ile Gly
725 730 735
Asn Leu Phe Lys Thr Arg Gly Lys Lys Thr Asp Arg Arg Glu Leu Leu
740 745 750
Ile Phe Ile Thr Pro Arg Ile Met Gly Thr Ala Gly Asn Ser Leu Arg
755 760 765

Tyr

<210> 170
<211> 431
<212> PRT
<213> Neisseria meningitidis

<400> 170
Met Ser Val Ile Gln Asp Leu Gln Ser Arg Gly Leu Ile Ala Gln Thr
1 5 10 15
Thr Asp Ile Glu Ala Leu Asp Ala Leu Leu Asn Glu Gln Lys Ile Ala
20 25 30
Leu Tyr Cys Gly Phe Asp Pro Thr Ala Asp Ser Leu His Ile Gly His
35 40 45
Leu Leu Pro Val Leu Ala Leu Arg Arg Phe Gln Gln Ala Gly His Thr
50 55 60
Pro Ile Ala Leu Val Gly Gly Ala Thr Gly Met Ile Gly Asp Pro Ser
65 70 75 80
Phe Lys Ala Ala Glu Arg Ser Leu Asn Ser Ala Glu Thr Val Ala Gly
85 90 95
Trp Val Glu Ser Ile Arg Asn Gln Leu Thr Pro Phe Leu Ser Phe Glu
100 105 110
Gly Gly Asn Ala Ala Ile Met Ala Asn Asn Ala Asp Trp Phe Gly Ser
115 120 125
Met Asn Cys Leu Asp Phe Leu Arg Asp Ile Gly Lys His Phe Ser Val
130 135 140
Asn Ala Met Leu Asn Lys Glu Ser Val Lys Gln Arg Ile Asp Arg Asp
145 150 155 160
Gly Ala Gly Ile Ser Phe Thr Glu Phe Ala Tyr Ser Leu Leu Gln Gly
165 170 175

SEQLIST_PP019737.0004.txt

Tyr Asp Phe Ala Glu Leu Asn Lys Arg His Gly Ala Val Leu Glu Ile
180 185 190
Gly Gly Ser Asp Gln Trp Gly Asn Ile Thr Ala Gly Ile Asp Leu Thr
195 200 205
Arg Arg Leu His Gln Lys Gln Val Phe Gly Leu Thr Leu Pro Leu Val
210 215 220
Thr Lys Ser Asp Gly Thr Lys Phe Gly Lys Thr Glu Gly Gly Ala Val
225 230 235 240
Trp Leu Asn Ala Lys Lys Thr Ser Pro Tyr Gln Phe Tyr Gln Phe Trp
245 250 255
Leu Lys Val Ala Asp Ala Asp Val Tyr Lys Phe Leu Lys Tyr Phe Thr
260 265 270
Phe Leu Ser Ile Glu Glu Ile Asp Ala Ile Glu Ala Lys Asp Lys Ala
275 280 285
Ser Gly Ser Lys Pro Glu Ala Gln Arg Ile Leu Ala Glu Glu Met Thr
290 295 300
Arg Leu Ile His Gly Glu Glu Ala Leu Ala Ala Gln Arg Ile Ser
305 310 315 320
Glu Ser Leu Phe Ala Glu Asp Gln Ser Ser Leu Thr Glu Ser Asp Phe
325 330 335
Glu Gln Leu Ala Leu Asp Gly Leu Pro Ala Phe Glu Val Ser Asp Gly
340 345 350
Ile Asn Val Val Glu Ala Leu Val Lys Thr Gly Leu Ala Ser Ser Asn
355 360 365
Lys Glu Ala Arg Gly Phe Val Asn Ser Lys Ala Val Leu Leu Asn Gly
370 375 380
Lys Pro Ala Glu Ala Asn Asn Pro Asn His Ala Ala Glu Arg Pro Asp
385 390 395 400
Asp Ala Cys Leu Leu Asn Gly Glu His Lys Arg Phe Gly Lys Tyr Thr
405 410 415
Ile Leu Arg Arg Gly Lys Arg Asn His Ala Leu Leu Val Trp Lys
420 425 430

<210> 171
<211> 363
<212> PRT
<213> Neisseria meningitidis

<400> 171
Met Ser Leu Lys Cys Gly Ile Val Gly Leu Pro Asn Val Gly Lys Ser
1 5 10 15
Thr Leu Phe Asn Ala Leu Thr Gln Ser Gly Ile Glu Ala Ala Asn Tyr
20 25 30
Pro Phe Cys Thr Ile Glu Pro Asn Val Gly Ile Val Glu Val Pro Asp
35 40 45

SEQLIST_PP019737.0004.txt

Pro Arg Met Ala Glu Leu Ala Lys Ile Val Asn Pro Gln Lys Met Gln
50 55 60

Pro Ala Ile Val Glu Phe Val Asp Ile Ala Gly Leu Val Ala Gly Ala
65 70 75 80

Ser Lys Gly Glu Gly Leu Gly Asn Gln Phe Leu Ala Asn Ile Arg Glu
85 90 95

Thr Asp Ala Ile Val Asn Val Val Arg Cys Phe Asp Asp Asp Asn Ile
100 105 110

Val His Val Ala Gly Arg Val Asp Pro Ile Ala Asp Ile Glu Thr Ile
115 120 125

Gly Thr Glu Leu Ala Leu Ala Asp Leu Ala Ser Val Glu Lys Ala Ile
130 135 140

Val Arg Glu Glu Lys Arg Ala Arg Ser Gly Asp Lys Asp Ala Gln Lys
145 150 155 160

Leu Val Asp Leu Cys Lys Lys Leu Leu Pro His Leu Asp Glu Gly Lys
165 170 175

Pro Val Arg Ser Phe Gly Leu Asp Ala Glu Glu Arg Ala Met Leu Lys
180 185 190

Pro Leu Phe Leu Leu Thr Ala Lys Pro Ala Met Tyr Val Gly Asn Val
195 200 205

Ala Glu Asp Gly Phe Glu Asn Asn Pro His Leu Asp Arg Leu Lys Glu
210 215 220

Leu Ala Ala Lys Glu Asn Ala Pro Val Val Ala Val Cys Ala Ala Met
225 230 235 240

Glu Ser Glu Ile Ala Glu Leu Glu Asp Asp Glu Lys Ala Glu Phe Leu
245 250 255

Ala Glu Met Gly Leu Glu Glu Pro Gly Leu Asn Arg Leu Ile Arg Ala
260 265 270

Gly Tyr Asp Leu Leu Gly Leu Gln Thr Tyr Phe Thr Ala Gly Val Lys
275 280 285

Glu Val Arg Ala Trp Thr Ile His Lys Gly Asp Thr Ala Pro Gln Ala
290 295 300

Ala Gly Val Ile His Thr Asp Phe Glu Arg Gly Phe Ile Arg Ala Gln
305 310 315 320

Val Ile Ser Tyr Asp Asp Phe Val Ser Leu Gly Gly Glu Ala Lys Ala
325 330 335

Lys Glu Ala Gly Lys Met Arg Val Glu Gly Lys Glu Tyr Val Val Gln
340 345 350

Asp Gly Asp Val Met His Phe Leu Phe Asn Val
355 360

<210> 172
<211> 146
<212> PRT

<213> Neisseria meningitidis

<400> 172

Met Pro Thr Gln Ser Lys His Ala Ser Ile Asn Ile Gly Leu Ile Gln
1 5 10 15Ala Arg Glu Ala Leu Met Thr Gln Phe Arg Pro Ile Leu Asn Gln Ala
20 25 30Asn Ile Thr Asp Gln Gln Trp Arg Ile Ile Arg Leu Leu Ala Glu Asn
35 40 45Gly Thr Leu Asp Phe Gln Asp Leu Ala Asn Gln Ala Cys Ile Leu Arg
50 55 60Pro Ser Leu Thr Gly Ile Leu Thr Arg Leu Glu Lys Ala Gly Leu Val
65 70 75 80Val Arg Leu Lys Pro Ser Asn Asp Gln Arg Arg Val Phe Leu Lys Leu
85 90 95Thr Ala Glu Gly Glu Lys Leu Tyr Glu Glu Ile Gly Glu Glu Val Asp
100 105 110Glu Arg Tyr Asp Ala Ile Glu Glu Val Leu Gly Arg Glu Lys Met Leu
115 120 125Leu Leu Lys Asp Leu Leu Ala Glu Leu Ala Lys Ile Glu Asp Ala Leu
130 135 140Asn Ser
145

<210> 173

<211> 377

<212> PRT

<213> Neisseria meningitidis

<400> 173

Met Ser Thr Pro Ala Leu Leu Val Leu Ala Asp Gly Ser Val Phe His
1 5 10 15Gly Thr Ser Ile Gly Tyr Glu Gly Ser Thr Ser Gly Glu Val Val Phe
20 25 30Asn Thr Ser Met Thr Gly Tyr Gln Glu Ile Leu Thr Asp Pro Ser Tyr
35 40 45Cys Lys Gln Ile Val Thr Leu Thr Tyr Pro His Ile Gly Asn Thr Gly
50 55 60Thr Asn Ala Glu Asp Glu Glu Ser Arg Ser Val Tyr Ala Ala Gly Leu
65 70 75 80Ile Ile Arg Asp Leu Pro Leu Leu His Ser Asn Phe Arg Ala Ser Glu
85 90 95Ser Leu His Asp Tyr Leu Val Arg Asn Lys Thr Val Ala Ile Ala Asp
100 105 110Ile Asp Thr Arg Arg Leu Thr Thr Leu Leu Arg Glu Lys Gly Ala Gln
115 120 125

SEQLIST_PP019737.0004.txt

Gly Gly Ala Ile Leu Thr Gly Ala Asp Ala Thr Ile Glu Lys Ala Gln
130 135 140
Glu Leu Ile Ala Ala Phe Gly Ser Met Val Gly Lys Asp Leu Ala Lys
145 150 155 160
Glu Val Ser Cys Thr Glu Thr Tyr Glu Trp Thr Glu Gly Glu Trp Ala
165 170 175
Leu Gly Lys Gly Phe Val Thr Pro Asp Glu Gln Pro Tyr His Val Val
180 185 190
Ala Tyr Asp Phe Gly Val Lys Thr Asn Ile Leu Arg Met Leu Ala Ser
195 200 205
Arg Gly Cys Arg Leu Thr Val Val Pro Ala Gln Thr Ser Ala Glu Asp
210 215 220
Val Leu Ala Leu Asn Pro Asp Gly Val Phe Leu Ser Asn Gly Pro Gly
225 230 235 240
Asp Pro Glu Pro Cys Thr Tyr Ala Ile Lys Ala Val Gln Lys Leu Ile
245 250 255
Glu Ser Gly Lys Pro Ile Phe Gly Ile Cys Leu Gly His Gln Leu Ile
260 265 270
Ser Leu Ala Ile Gly Ala Lys Thr Leu Lys Met Arg Phe Ser His His
275 280 285
Gly Ala Asn His Pro Val Gln Asp Leu Asp Ser Gly Lys Val Val Ile
290 295 300
Thr Ser Gln Asn His Gly Phe Ala Val Asp Ala Asp Thr Leu Pro Ala
305 310 315 320
Asn Ala Arg Ile Thr His Lys Ser Leu Phe Asp Asn Thr Leu Gln Gly
325 330 335
Ile Glu Leu Thr Asp Lys Pro Val Phe Cys Phe Gln Gly His Pro Glu
340 345 350
Ala Ser Pro Gly Pro Gln Asp Val Gly Tyr Leu Phe Asp Lys Phe Ile
355 360 365
Gly Asn Met Lys Ala Ala Lys Arg Ala
370 375

<210> 174
<211> 213
<212> PRT
<213> Neisseria meningitidis

<400> 174
Met Ser Ile Pro Ile Asn Phe Asn Asn Leu Lys Tyr Leu Leu Asn Asp
1 5 10 15
Met Arg Asn Lys Asn Arg Ile Ile Glu Ala Phe Pro Phe Asn Tyr Asn
20 25 30
Gln Arg Gln Tyr Ala Val Ile Leu Thr Arg Tyr Lys Pro Asp Glu Pro
35 40 45

SEQLIST_PP019737.0004.txt

Arg Pro Asp Asp Tyr Ala Gln Ala Lys Leu Glu Phe Phe Asn Leu Asn
50 55 60
Ser Glu Asn Ser Ile Phe Ala Tyr Ala Asp Phe Tyr Glu Val His Phe
65 70 75 80
Lys Ser Ala Thr Asp Phe Ile Asn Phe Phe Lys Ile Asn Val Gln Ala
85 90 95
Gly Ala Ala Lys Ile Arg Glu Ile Phe Gln Ser Phe Ser Asn Leu Phe
100 105 110
Ala Asp Phe Ile Pro Thr Gln Thr Lys Lys Asp Leu Asp Ile Ile Tyr
115 120 125
Lys Lys Ile Val Ala Thr Arg Leu Glu Pro Asn Ser Pro Asn Thr Ile
130 135 140
Tyr Cys Tyr Asp Val Arg Arg Asn Gly Lys Asp Lys Ala Gly Lys Pro
145 150 155 160
Asn Arg Arg Ser Val Glu Asn Ser Glu Lys Ala Lys Ile Leu Arg Pro
165 170 175
Glu Leu Tyr Glu Lys Phe Lys Ala Asp Ser Asn Tyr Ser Phe Phe Phe
180 185 190
Ser Asp Asn Pro Ser Asp Glu Lys Thr Asp Ala Glu Ile Ile Arg Glu
195 200 205
Val Thr Asn Arg Gln
210

<210> 175
<211> 1071
<212> PRT
<213> Neisseria meningitidis

<400> 175
Met Pro Lys Arg Thr Asp Leu Lys Ser Ile Leu Ile Ile Gly Ala Gly
1 5 10 15
Pro Ile Val Ile Gly Gln Ala Cys Glu Phe Asp Tyr Ser Gly Ala Gln
20 25 30
Ala Cys Lys Ala Leu Arg Glu Glu Gly Tyr Lys Val Ile Leu Val Asn
35 40 45
Ser Asn Pro Ala Thr Ile Met Thr Asp Pro Glu Met Ala Asp Val Thr
50 55 60
Tyr Ile Glu Pro Ile Met Trp Gln Thr Val Glu Lys Ile Ile Ala Lys
65 70 75 80
Glu Arg Pro Asp Ala Ile Leu Pro Thr Met Gly Gly Gln Thr Ala Leu
85 90 95
Asn Cys Ala Leu Asp Leu Ala Arg Asn Gly Val Leu Ala Lys Tyr Asn
100 105 110
Val Glu Leu Ile Gly Ala Thr Glu Asp Ala Ile Asp Lys Ala Glu Asp
115 120 125

SEQLIST_PP019737.0004.txt

Arg Gly Arg Phe Lys Glu Ala Met Glu Lys Ile Gly Leu Ser Cys Pro
130 135 140

Lys Ser Phe Val Cys His Thr Met Asn Glu Ala Leu Ala Ala Gln Glu
145 150 155 160

Gln Val Gly Phe Pro Thr Leu Ile Arg Pro Ser Phe Thr Met Gly Gly
165 170 175

Ser Gly Gly Gly Ile Ala Tyr Asn Lys Asp Glu Phe Leu Ala Ile Cys
180 185 190

Glu Arg Gly Phe Asp Ala Ser Pro Thr His Glu Leu Leu Ile Glu Gln
195 200 205

Ser Val Leu Gly Trp Lys Glu Tyr Glu Met Glu Val Val Arg Asp Lys
210 215 220

Asn Asp Asn Cys Ile Ile Ile Cys Ser Ile Glu Asn Phe Asp Pro Met
225 230 235 240

Gly Val His Thr Gly Asp Ser Ile Thr Val Ala Pro Ala Gln Thr Leu
245 250 255

Thr Asp Lys Glu Tyr Gln Ile Met Arg Asn Ala Ser Leu Ala Val Leu
260 265 270

Arg Glu Ile Gly Val Asp Thr Gly Gly Ser Asn Val Gln Phe Ala Val
275 280 285

Asn Pro Ala Asn Gly Glu Met Ile Val Ile Glu Met Asn Pro Arg Val
290 295 300

Ser Arg Ser Ser Ala Leu Ala Ser Lys Ala Thr Gly Phe Pro Ile Ala
305 310 315 320

Lys Val Ala Ala Lys Leu Ala Val Gly Phe Thr Leu Asp Glu Leu Arg
325 330 335

Asn Asp Ile Thr Gly Gly Lys Thr Pro Ala Ser Phe Glu Pro Ser Ile
340 345 350

Asp Tyr Val Val Thr Lys Ile Pro Arg Phe Ala Phe Glu Lys Phe Pro
355 360 365

Ala Ala Asp Asp Arg Leu Thr Thr Gln Met Lys Ser Val Gly Glu Val
370 375 380

Met Ala Met Gly Arg Thr Ile Gln Glu Ser Phe Gln Lys Ala Leu Arg
385 390 395 400

Gly Leu Glu Thr Gly Leu Cys Gly Phe Asn Pro Arg Ser Glu Asp Lys
405 410 415

Ala Glu Ile Arg Arg Glu Leu Ala Asn Pro Gly Pro Glu Arg Met Leu
420 425 430

Phe Val Ala Asp Ala Phe Arg Ala Gly Phe Thr Leu Glu Glu Ile His
435 440 445

Glu Ile Cys Ala Ile Asp Pro Trp Phe Leu Ala Gln Ile Glu Asp Leu
450 455 460

SEQLIST_PP019737.0004.txt

Met Lys Glu Glu Lys Ala Val Ser Asp Gly Ile Leu Ser Asp Leu Asp
465 470 475 480

Phe Ala Ala Leu Arg Arg Leu Lys Arg Lys Gly Phe Ser Asp Lys Arg
485 490 495

Leu Ala Gln Leu Leu Asn Val Ser Glu Lys Glu Val Arg Glu His Arg
500 505 510

Tyr Ala Leu Lys Leu His Pro Val Tyr Lys Arg Val Asp Thr Cys Ala
515 520 525

Ala Glu Phe Ala Thr Glu Thr Ala Tyr Leu Tyr Ser Thr Tyr Glu Glu
530 535 540

Glu Cys Glu Ser Arg Pro Ser Asp Arg Lys Lys Val Met Ile Leu Gly
545 550 555 560

Gly Gly Pro Asn Arg Ile Gly Gln Gly Ile Glu Phe Asp Tyr Cys Cys
565 570 575

Val His Ala Ala Leu Ala Leu Arg Glu Ser Gly Phe Glu Thr Ile Met
580 585 590

Val Asn Cys Asn Pro Glu Thr Val Ser Thr Asp Phe Asp Thr Ser Asp
595 600 605

Arg Leu Tyr Phe Glu Pro Leu Thr Leu Glu Asp Val Leu Glu Ile Val
610 615 620

Arg Thr Glu Asn Pro Trp Gly Val Ile Val His Tyr Gly Gly Gln Thr
625 630 635 640

Pro Leu Lys Leu Ala Asn Ala Leu Val Glu Asn Gly Val Asn Ile Ile
645 650 655

Gly Thr Ser Ala Asp Ser Ile Asp Ala Ala Glu Asp Arg Glu Arg Phe
660 665 670

Gln Lys Val Leu Asn Asp Leu Gly Leu Arg Gln Pro Pro Asn Arg Ile
675 680 685

Ala His Asn Glu Glu Glu Ala Leu Val Lys Ala Glu Glu Ile Gly Tyr
690 695 700

Pro Leu Val Val Arg Pro Ser Tyr Val Leu Gly Gly Arg Ala Met Gln
705 710 715 720

Val Val His Ser Ala Glu Glu Leu Gln Lys Tyr Met Arg Glu Ala Val
725 730 735

Gln Val Ser Glu Asp Ser Pro Val Leu Leu Asp Phe Phe Leu Asn Asn
740 745 750

Ala Ile Glu Val Asp Val Asp Cys Val Ser Asp Gly Lys Asp Val Val
755 760 765

Ile Gly Gly Ile Met Gln His Val Glu Gln Ala Gly Ile His Ser Gly
770 775 780

Asp Ser Gly Cys Ser Leu Pro Pro Tyr Ser Leu Ser Glu Glu Ile Gln
785 790 795 800

SEQLIST_PP019737.0004.txt

Asp Glu Ile Arg Arg Gln Thr Lys Ala Met Ala Tyr Ala Leu Gly Val
805 810 815

Val Gly Leu Met Asn Val Gln Phe Ala Val Gln Asp Gly Val Val Phe
820 825 830

Val Leu Glu Val Asn Pro Arg Ala Ser Arg Thr Val Pro Phe Val Ser
835 840 845

Lys Ala Thr Gly Val Pro Leu Ala Lys Val Gly Ala Arg Cys Met Ala
850 855 860

Gly Ile Ser Leu Lys Glu Gln Gly Val Glu Lys Glu Val Val Pro Asp
865 870 875 880

Phe Tyr Ala Val Lys Glu Ala Val Phe Pro Phe Ile Lys Phe Pro Gly
885 890 895

Val Asp Thr Ile Leu Gly Pro Glu Met Arg Ser Thr Gly Glu Val Met
900 905 910

Gly Val Gly Ala Ser Phe Gly Glu Ala Tyr Tyr Lys Ala Gln Leu Gly
915 920 925

Ala Gly Glu Arg Leu Asn Pro Thr Gly Lys Ile Phe Leu Ser Val Arg
930 935 940

Glu Glu Asp Lys Glu Arg Val Ile Lys Thr Ala Lys Asn Phe Gln Val
945 950 955 960

Leu Gly Tyr Gly Ile Cys Ala Thr Arg Gly Thr Ala Gln Tyr Leu Thr
965 970 975

Glu His Gly Leu Ile Val Gln Thr Ile Asn Lys Val Pro Glu Gly Arg
980 985 990

Pro His Ile Gly Asp Ala Leu Lys Asn Gly Glu Ile Ala Leu Val Val
995 1000 1005

Asn Thr Val Ser Ser Asp Pro Gln Ser Val Ser Asp Ser His Ile Ile
1010 1015 1020

Arg Gln Ser Ala Leu Gln Gln Arg Val Pro Gln Tyr Thr Thr Thr Ala
1025 1030 1035 1040

Gly Gly Glu Ala Met Ser Glu Gly Ala Lys Ser Arg Asp His Leu Gly
1045 1050 1055

Val Tyr Ser Val Gln Glu Leu His Gly Arg Leu Lys Asn Arg Asn
1060 1065 1070

<210> 176
<211> 346
<212> PRT
<213> Neisseria meningitidis

<400> 176
Met Asp Ile Ser Asp Phe Asp Phe Thr Leu Pro Glu Lys Leu Ile Ala
1 5 10 15

Gln His Pro Pro Glu Val Arg Gly Ser Ser Arg Leu Leu Val Ala Leu
20 25 30

SEQLIST_PP019737.0004.txt

Pro Asp Met Pro Leu Gln Asp Arg Val Phe Gly Asp Leu Pro Asp Tyr
35 40 45
Val Glu Ala Gly Asp Val Leu Val Phe Asn Asn Thr Lys Val Met Lys
50 55 60
Ala Arg Leu Phe Gly Gln Lys Asp Ser Gly Gly Arg Ile Glu Ala Leu
65 70 75 80
Ile Glu Arg Val Leu Asp Asn His Thr Ala Leu Ala His Ile Arg Ser
85 90 95
Ser Lys Ser Pro Lys Pro Gly Met Gly Leu Val Phe Glu Gly Gly Ile
100 105 110
Arg Ala Val Thr Val Gly Arg Glu Gly Glu Leu Phe Cys Leu Arg Phe
115 120 125
Glu Gly Gly Glu Thr Val Tyr Glu Leu Leu Glu Gln Asn Gly His Leu
130 135 140
Pro Leu Pro Pro Tyr Ile Glu Arg Ala Ala Asp Ala Asp Asp Asp Ser
145 150 155 160
Arg Tyr Gln Thr Val Tyr Ala Lys Tyr Gln Gly Ala Val Ala Ala Pro
165 170 175
Thr Ala Gly Leu His Phe Thr Glu Glu Leu Leu His Arg Leu Lys Asp
180 185 190
Lys Gly Ala Val Thr Ala Glu Val Thr Leu His Val Gly Ala Gly Thr
195 200 205
Phe Gln Pro Val Arg Val Asp Lys Ile Glu Glu His Lys Met His Ser
210 215 220
Glu Trp Phe Glu Val Pro Ser Glu Thr Ala Ala Ala Val Glu Ala Ala
225 230 235 240
Lys Ala Arg Gly Asn Lys Val Trp Ala Val Gly Thr Thr Ser Met Arg
245 250 255
Ala Leu Glu Ser Ala Ala Arg Ala Thr Gly Arg Leu Lys Ala Gly Gln
260 265 270
Gly Asp Thr Asp Ile Phe Ile Thr Pro Gly Tyr Arg Phe Asn Val Val
275 280 285
Asp Arg Leu Val Thr Asn Phe His Leu Pro Lys Ser Thr Leu Leu Met
290 295 300
Leu Val Ser Ala Phe Ser Gly Met Gly His Ile Arg Ala Ala Tyr Arg
305 310 315 320
His Ala Val Glu Arg Glu Tyr Arg Phe Phe Ser Tyr Gly Asp Ala Met
325 330 335
Val Leu Gly Arg Asn Glu Gly Val Val Arg
340 345

<210> 177
<211> 453
<212> PRT

<213> Neisseria meningitidis

<400> 177

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Met Leu Lys Lys Val Leu Ile Ala Asn Arg Gly Glu Ile Ala Leu Arg
1      5      10      15
Val Leu Arg Ala Cys Arg Glu Met Gly Ile Ala Thr Val Ala Val His
20     25     30
Ser Glu Ala Asp Lys Asp Ser Leu His Val Lys Leu Ala Asp Glu Ser
35     40     45
Val Cys Ile Gly Pro Ala Ala Ser Ala Gln Ser Tyr Leu Asn Val Pro
50     55     60
Ala Ile Ile Ala Ala Ala Glu Val Ser Cys Ala Asp Ala Val His Pro
65     70     75     80
Gly Tyr Gly Phe Leu Ala Glu Asn Ala Asp Phe Ala Glu Gln Val Glu
85     90     95
Gln Ser Gly Phe Thr Phe Ile Gly Pro Lys Pro Asp Thr Ile Arg Leu
100    105    110
Met Gly Asp Lys Val Ser Ala Lys His Ala Met Ile Ala Ala Gly Val
115    120    125
Pro Cys Val Pro Gly Ser Asp Gly Ala Leu Pro Asp Asp Gly Glu Glu
130    135    140
Ile Leu Lys Ile Ala Asp Lys Val Gly Tyr Pro Val Ile Ile Lys Ala
145    150    155    160
Ser Gly Gly Gly Gly Gly Arg Gly Met Arg Val Val Glu Lys Lys Glu
165    170    175
Asp Leu Leu Gln Ser Val Glu Met Thr Lys Ala Glu Ala Gly Ala Ala
180    185    190
Phe Gly Asn Pro Met Val Tyr Met Glu Arg Tyr Leu Gln Arg Pro Arg
195    200    205
His Val Glu Ile Gln Val Ile Ala Asp Glu His Gly Asn Ala Ile Tyr
210    215    220
Leu Ala Glu Arg Asp Cys Ser Leu Gln Arg Arg His Gln Lys Val Ile
225    230    235    240
Glu Glu Ala Pro Ala Pro Phe Ile Thr Glu Lys Glu Arg Ala Lys Ile
245    250    255
Gly Asn Ala Cys Ala Asp Ala Cys Lys Arg Ile Gly Tyr Arg Gly Ala
260    265    270
Gly Thr Phe Glu Phe Leu Tyr Glu Asp Gly Glu Phe Phe Phe Ile Glu
275    280    285
Met Asn Thr Arg Val Gln Val Glu His Pro Val Thr Glu Leu Ile Thr
290    295    300
Gly Val Asp Ile Val Gln Glu Gln Leu Arg Ile Ala Ala Gly Leu Pro
305    310    315    320

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SEQLIST_PP019737.0004.txt

Leu Gln Tyr Lys Gln Lys Asp Ile Gln Val Glu Gly His Ala Phe Glu
 325 330 335
 Cys Arg Ile Asn Ala Glu Asp Pro Tyr Asn Phe Ile Pro Ser Pro Gly
 340 345 350
 Leu Ile Glu Ser Cys His Leu Pro Gly Gly Phe Gly Ile Arg Val Asp
 355 360 365
 Ser His Ile Tyr Gln Gly Tyr Arg Ile Pro Pro Tyr Tyr Asp Ser Leu
 370 375 380
 Ile Gly Lys Ile Cys Val His Gly Lys Thr Arg Glu Gln Ala Met Ala
 385 390 395 400
 Lys Met Arg Val Ala Leu Ala Glu Leu Ala Val Thr Gly Ile Lys Thr
 405 410 415
 Asn Thr Pro Leu His Arg Asp Leu Phe Ala Asp Ala Gly Phe Gln Lys
 420 425 430
 Gly Gly Val Ser Ile His Tyr Leu Glu His Trp Leu Glu Asp Arg Lys
 435 440 445
 Ala Lys Gln Asp Lys
 450

<210> 178
 <211> 295
 <212> PRT
 <213> Neisseria meningitidis

<400> 178
 Met Pro Tyr Gln Gln Ile Thr Val Asn Val Asn Asp Ala Val Ala Glu
 1 5 10 15
 Arg Leu Ala Asp Ala Leu Met Glu His Gly Ala Leu Ser Ala Ala Ile
 20 25 30
 Glu Asp Ala Tyr Ala Gly Thr Gln Asn Glu Gln Ala Ile Phe Gly Glu
 35 40 45
 Pro Gly Met Pro Ala Glu Gln Ile Trp Gln Gln Ser Lys Val Ile Ala
 50 55 60
 Leu Phe Gly Glu His Asp Glu Ala Ala Ala Ile Ile Gln Thr Ala Thr
 65 70 75 80
 Gln Glu Cys Gly Leu Lys Asp Leu Ala Tyr Thr Gly Glu Thr Ile Glu
 85 90 95
 Asp Gln Asp Trp Val Arg Leu Thr Gln Ser Gln Phe Asp Pro Ile Arg
 100 105 110
 Ile Ser Asp Arg Leu Trp Ile Thr Pro Ser Trp His Glu Val Pro Glu
 115 120 125
 Gly Ser Ala Val Asn Leu Arg Leu Asp Pro Gly Leu Ala Phe Gly Thr
 130 135 140
 Gly Ser His Pro Thr Thr Arg Leu Cys Leu Lys Trp Leu Asp Thr Gln
 145 150 155 160

SEQLIST_PP019737.0004.txt

Leu Lys Asn Gly Glu Ser Val Leu Asp Tyr Gly Cys Gly Ser Gly Ile
 165 170 175
 Leu Thr Ile Ala Ala Leu Lys Leu Gly Ala Gly Phe Ala Val Gly Val
 180 185 190
 Asp Ile Asp Glu Gln Ala Val Arg Ala Gly Lys Asp Asn Ala Ala Gln
 195 200 205
 Asn Asn Val Asp Ala Gln Phe Phe Leu Pro Asp Gly Leu Pro Gln Gly
 210 215 220
 Gln Phe Asp Val Val Val Ala Asn Ile Leu Ala Asn Pro Leu Arg Met
 225 230 235 240
 Leu Gly Glu Met Leu Ala Ala Arg Thr Lys Gln Gly Gly Arg Ile Val
 245 250 255
 Leu Ser Gly Leu Leu Asp Glu Gln Ala Glu Glu Leu Gly Gly Ile Tyr
 260 265 270
 Ser Gln Trp Phe Asp Leu Asp Pro Ala Glu Thr Glu Glu Gly Trp Ala
 275 280 285
 Arg Leu Ser Gly Val Lys Arg
 290 295
 <210> 179
 <211> 427
 <212> PRT
 <213> Neisseria meningitidis
 <400> 179
 Met Asn Arg Asn Glu Ile Leu Phe Asp Arg Ala Lys Ala Ile Ile Pro
 1 5 10 15
 Gly Gly Val Asn Ser Pro Val Arg Ala Phe Gly Ser Val Gly Gly Val
 20 25 30
 Pro Arg Phe Ile Lys Lys Ala Glu Gly Ala Tyr Val Trp Asp Glu Asn
 35 40 45
 Gly Thr Arg Tyr Thr Asp Tyr Val Gly Ser Trp Gly Pro Ala Ile Val
 50 55 60
 Gly His Ala His Pro Glu Val Val Glu Thr Val Cys Glu Ala Ala Leu
 65 70 75 80
 Gly Gly Leu Ser Phe Gly Ala Pro Thr Glu Gly Glu Ile Val Ile Ala
 85 90 95
 Glu Glu Ile Ala Lys Ile Met Pro Ser Val Glu Arg Leu Arg Leu Val
 100 105 110
 Ser Ser Gly Thr Glu Ala Thr Met Thr Ala Ile Arg Leu Ala Arg Gly
 115 120 125
 Phe Thr Gly Arg Asp Lys Ile Ile Lys Phe Glu Gly Cys Tyr His Gly
 130 135 140
 His Ser Asp Ser Leu Leu Val Lys Ala Gly Ser Gly Leu Leu Thr Phe
 145 150 155 160

SEQLIST_PP019737.0004.txt

Gly Asn Pro Ser Ser Ala Gly Val Pro Ala Asp Phe Thr Lys His Thr
165 170 175
Leu Val Leu Glu Tyr Asn Asn Ile Ala Gln Leu Glu Glu Ala Phe Ala
180 185 190
Gln Ser Gly Asn Glu Ile Ala Cys Val Ile Val Glu Pro Phe Val Gly
195 200 205
Asn Met Asn Leu Val Arg Pro Thr Glu Ala Phe Val Lys Ala Leu Arg
210 215 220
Gly Leu Thr Glu Lys Tyr Gly Ala Val Leu Ile Tyr Asp Glu Val Met
225 230 235 240
Thr Gly Phe Arg Val Ala Leu Gly Gly Ala Gln Ser Leu His Gly Ile
245 250 255
Thr Pro Asp Leu Thr Thr Met Gly Lys Val Ile Gly Gly Gly Met Pro
260 265 270
Leu Ala Ala Phe Gly Gly Arg Lys Asp Ile Met Glu Cys Ile Ser Pro
275 280 285
Leu Gly Gly Val Tyr Gln Ala Gly Thr Leu Ser Gly Asn Pro Ile Ala
290 295 300
Val Ala Ala Gly Leu Lys Thr Leu Glu Ile Ile Gln Arg Glu Gly Phe
305 310 315 320
Tyr Glu Asn Leu Thr Ala Arg Thr Glu Gln Leu Val Gln Gly Phe Arg
325 330 335
Thr Ala Ala Asp Ala Ala Gly Ile Glu Phe Thr Ala Asp Ser Val Gly
340 345 350
Gly Met Phe Gly Leu Tyr Phe Ala Ala His Ala Pro Arg Asn Tyr Ala
355 360 365
Asp Met Ala Arg Ser Asn Ile Glu Gly Phe Lys Gln Phe Phe His Gly
370 375 380
Met Leu Asp Arg Asn Val Ala Phe Gly Pro Ser Ala Tyr Glu Ala Gly
385 390 395 400
Phe Val Ser Ala Ala His Thr Pro Glu Leu Ile Asp Glu Thr Val Ala
405 410 415
Val Ala Val Glu Val Phe Lys Ala Met Ala Glu
420 425

<210> 180

<211> 518

<212> PRT

<213> Neisseria meningitidis

<400> 180

Met Thr Leu Ala Glu Phe Trp Pro Leu Cys Leu Arg Arg Leu His Asp
1 5 10 15

Met Leu Pro Gln Gly Gln Phe Ala Gln Trp Ile Ala Pro Leu Thr Val
20 25 30

SEQLIST_PP019737.0004.txt

Gly Glu Glu Gly Gly Val Trp Val Val Tyr Gly Lys Asn Gln Phe Ala
35 40 45
Cys Asn Met Leu Lys Ser Gln Phe Ala Gly Lys Ile Glu Ala Val Arg
50 55 60
Glu Glu Leu Ala Ala Gly Arg Ser Ala Phe Val Phe Lys Pro Gly Glu
65 70 75 80
Gly Val Arg Tyr Glu Met Ala Ala Val Glu Gly Ala Val Glu Pro Ala
85 90 95
Glu Pro Ser Leu His Ala Val Ser Glu Gly Met Pro Val Gln Glu Val
100 105 110
Leu Leu Asp Glu Leu Pro Ser Glu Glu Pro Val Lys Pro Ala Ala Ser
115 120 125
Lys Thr Ala Ala Asp Ile Leu Ala Glu Arg Met Lys Asn Leu Pro His
130 135 140
Glu Pro Arg Gln Ala Ala Gly Ser Ala Ser Arg Pro Glu Ser Val Ala
145 150 155 160
Val Ala Lys Ala Arg Thr Asp Val Gln Arg Asp Ala Glu Glu Ala Arg
165 170 175
Tyr Glu Gln Thr Asn Leu Ser Pro Asp Tyr Thr Phe Asp Thr Leu Val
180 185 190
Glu Gly Lys Gly Asn Arg Leu Ala Ala Ala Ala Ala Gln Ala Ile Ala
195 200 205
Glu Ser Pro Gly Gln Ser Tyr Asn Pro Phe Phe Leu Tyr Gly Ser Thr
210 215 220
Gly Leu Gly Lys Thr His Leu Val Gln Ala Val Gly Asn Glu Leu Leu
225 230 235 240
Lys Asn Arg Pro Asp Ala Lys Val Arg Tyr Met His Ser Asp Asp Tyr
245 250 255
Ile Arg Ser Phe Met Lys Ala Val Arg Asn Asn Thr Tyr Asp Val Phe
260 265 270
Lys Gln Gln Tyr Lys Gln Tyr Asp Leu Leu Ile Ile Asp Asp Ile Gln
275 280 285
Phe Ile Lys Gly Lys Asp Arg Thr Met Glu Glu Phe Phe Tyr Leu Tyr
290 295 300
Asn His Phe His Asn Glu Lys Lys Gln Leu Ile Leu Thr Cys Asp Val
305 310 315 320
Leu Pro Ala Lys Ile Glu Gly Met Asp Asp Arg Leu Lys Ser Arg Phe
325 330 335
Ser Trp Gly Leu Thr Leu Glu Leu Glu Pro Pro Glu Leu Glu Met Arg
340 345 350
Ile Ala Ile Leu Gln Lys Lys Ala Glu Ala Ala Gly Ile Ser Ile Glu
355 360 365

SEQLIST_PP019737.0004.txt

Asp Glu Ala Ala Leu Phe Ile Ala Asn Leu Ile Arg Ser Asn Val Arg
 370 375 380
 Glu Leu Glu Gly Ala Phe Asn Arg Val Gly Ala Ser Ser Arg Phe Met
 385 390 395 400
 Asn Arg Pro Val Ile Asp Ile Asp Leu Ala Arg Thr Ala Leu Gln Asp
 405 410 415
 Ile Ile Ala Glu Lys His Lys Val Ile Thr Ala Asp Ile Ile Ile Asp
 420 425 430
 Ala Val Ala Lys Tyr Tyr Arg Ile Lys Ile Ser Asp Val Leu Gly Lys
 435 440 445
 Lys Arg Thr Arg Asn Ile Ala Arg Pro Arg Gln Val Ala Met Ser Leu
 450 455 460
 Thr Lys Glu Leu Thr Thr Leu Ser Leu Pro Ser Ile Gly Asp Ser Phe
 465 470 475 480
 Gly Gly Arg Asp His Thr Thr Val Met His Gly Ile Arg Ala Val Ala
 485 490 495
 Lys Leu Arg Glu Glu Asp Pro Glu Leu Ala Gln Asp Tyr Glu Lys Leu
 500 505 510
 Leu Ile Leu Ile Gln Asn
 515
 <210> 181
 <211> 521
 <212> PRT
 <213> Neisseria meningitidis
 <400> 181
 Met Thr Gln Asp Lys Ile Leu Ile Leu Asp Phe Gly Ser Gln Val Thr
 1 5 10 15
 Gln Leu Ile Ala Arg Arg Val Arg Glu Ala His Val Tyr Cys Glu Leu
 20 25 30
 His Ser Phe Asp Met Pro Leu Asp Glu Ile Lys Ala Phe Asn Pro Lys
 35 40 45
 Gly Ile Ile Leu Ser Gly Gly Pro Asn Ser Val Tyr Glu Ser Asp Tyr
 50 55 60
 Gln Ala Asp Thr Gly Ile Phe Asp Leu Gly Ile Pro Val Leu Gly Ile
 65 70 75 80
 Cys Tyr Gly Met Gln Phe Met Ala His His Leu Gly Gly Glu Val Gln
 85 90 95
 Pro Gly Asn Gln Arg Glu Phe Gly Tyr Ala Gln Val Lys Thr Ile Asp
 100 105 110
 Ser Glu Leu Thr Arg Gly Ile Gln Asp Gly Glu Pro Asn Thr Leu Asp
 115 120 125
 Val Trp Met Ser His Gly Asp Lys Val Ser Lys Leu Pro Asp Gly Phe
 130 135 140

SEQLIST_PP019737.0004.txt

Ala Val Ile Gly Asn Thr Pro Ser Cys Pro Ile Ala Met Met Glu Asn
145 150 155 160

Ala Glu Lys Gln Phe Tyr Gly Ile Gln Phe His Pro Glu Val Thr His
165 170 175

Thr Lys Gln Gly Arg Ala Leu Leu Asn Arg Phe Val Leu Asp Ile Cys
180 185 190

Gly Ala Gln Pro Gly Trp Thr Met Pro Asn Tyr Ile Glu Glu Ala Val
195 200 205

Ala Lys Ile Arg Glu Gln Val Gly Ser Asp Glu Val Ile Leu Gly Leu
210 215 220

Ser Gly Gly Val Asp Ser Ser Val Ala Ala Ala Leu Ile His Arg Ala
225 230 235 240

Ile Gly Asp Gln Leu Thr Cys Val Phe Val Asp His Gly Leu Leu Arg
245 250 255

Leu Asn Glu Ser Lys Met Val Met Asp Met Phe Ala Arg Asn Leu Gly
260 265 270

Val Lys Val Ile His Val Asp Ala Glu Gly Gln Phe Met Ala Lys Leu
275 280 285

Ala Gly Val Thr Asp Pro Glu Lys Lys Arg Lys Ile Ile Gly Ala Glu
290 295 300

Phe Ile Glu Val Phe Asp Ala Glu Glu Lys Lys Leu Thr Asn Ala Lys
305 310 315 320

Trp Leu Ala Gln Gly Thr Ile Tyr Pro Asp Val Ile Glu Ser Ala Gly
325 330 335

Ala Lys Thr Lys Lys Ala His Ala Ile Lys Ser His His Asn Val Gly
340 345 350

Gly Leu Pro Glu Asn Met Lys Leu Lys Leu Leu Glu Pro Leu Arg Asp
355 360 365

Leu Phe Lys Asp Glu Val Arg Glu Leu Gly Val Ala Leu Gly Leu Pro
370 375 380

Arg Glu Met Val Tyr Arg His Pro Phe Pro Gly Pro Gly Leu Gly Val
385 390 395 400

Arg Ile Leu Gly Glu Val Lys Lys Glu Tyr Ala Asp Leu Leu Arg Gln
405 410 415

Ala Asp Asp Ile Phe Ile Gln Glu Leu Arg Asn Thr Thr Asp Glu Asn
420 425 430

Gly Thr Ser Trp Tyr Asp Leu Thr Ser Gln Ala Phe Ala Val Phe Leu
435 440 445

Pro Val Lys Ser Val Gly Val Met Gly Asp Gly Arg Thr Tyr Asp Tyr
450 455 460

Val Ile Ala Leu Arg Ala Val Ile Thr Ser Asp Phe Met Thr Ala His
465 470 475 480

SEQLIST_PP019737.0004.txt

Trp Ala Glu Leu Pro Tyr Ser Leu Leu Gly Lys Val Ser Asn Arg Ile
485 490 495

Ile Asn Glu Val Lys Gly Ile Asn Arg Val Val Tyr Asp Val Ser Gly
500 505 510

Lys Pro Pro Ala Thr Ile Glu Trp Glu
515 520

<210> 182

<211> 248

<212> PRT

<213> Neisseria meningitidis

<400> 182

Met Ser Thr Gln Asp Leu Asn Gly Lys Ile Ala Leu Val Thr Gly Ala
1 5 10 15

Ser Arg Gly Ile Gly Ala Ala Ile Ala Asp Thr Leu Ala Ala Ala Gly
20 25 30

Ala Lys Val Ile Gly Thr Ala Thr Ser Glu Ser Gly Ala Ala Ala Ile
35 40 45

Ser Glu Arg Leu Ala Gln Trp Gly Gly Glu Gly Arg Val Leu Asn Ser
50 55 60

Ala Glu Pro Glu Thr Ile Glu Ser Leu Ile Ala Asp Ile Glu Lys Ala
65 70 75 80

Phe Gly Lys Leu Asp Ile Leu Val Asn Asn Ala Gly Ile Thr Arg Asp
85 90 95

Asn Leu Leu Met Arg Met Lys Glu Glu Glu Trp Asp Asp Ile Met Gln
100 105 110

Val Asn Leu Lys Ser Val Phe Arg Ala Ser Lys Ala Val Leu Arg Gly
115 120 125

Met Met Lys Gln Arg Ser Gly Arg Ile Ile Asn Ile Thr Ser Val Val
130 135 140

Gly Val Met Gly Asn Ala Gly Gln Thr Asn Tyr Ala Ala Ala Lys Ala
145 150 155 160

Gly Leu Ile Gly Phe Ser Lys Ser Met Ala Arg Glu Val Gly Ser Arg
165 170 175

Gly Ile Thr Val Asn Cys Val Ala Pro Gly Phe Ile Asp Thr Asp Met
180 185 190

Thr Arg Ala Leu Pro Glu Glu Thr Arg Gln Thr Phe Thr Ala Gln Thr
195 200 205

Ala Leu Gly Arg Phe Gly Asp Ala Gln Asp Ile Ala Asp Ala Val Leu
210 215 220

Phe Leu Ala Ser Asp Gln Ala Lys Tyr Ile Thr Gly Gln Thr Leu His
225 230 235 240

Val Asn Gly Gly Met Leu Met Pro
245

SEQLIST_PP019737.0004.txt

<210> 183
 <211> 687
 <212> PRT
 <213> Neisseria meningitidis

<400> 183
 Met Met Thr Gln Thr Leu Leu Ile Glu Leu Leu Thr Glu Glu Leu Pro
 1 5 10 15
 Pro Lys Ala Leu Asn Asn Leu Gly Asn His Phe Ala Ala Ser Val Ala
 20 25 30
 Glu Gly Leu Glu Lys Ala Gln Leu Val Asp Gly Ala Ala Glu Phe Thr
 35 40 45
 Ala Tyr Ala Ser Pro Arg Arg Leu Ala Val Gln Val Lys Asn Val Lys
 50 55 60
 Ala Val Gln Ala Asp Gln Lys Ile Val Lys Lys Gly Pro Ala Val Ala
 65 70 75 80
 Asn Ala Met Lys Asp Gly Ala Pro Thr Lys Ala Leu Glu Gly Phe Ala
 85 90 95
 Arg Gly Ala Gly Ala Lys Ile Glu Asp Leu Thr Ile Val His Asp Gly
 100 105 110
 Lys Gln Asp Val Tyr Ala Tyr Glu Tyr Val Gln Ile Gly Lys Pro Leu
 115 120 125
 Gly Gly Leu Leu Glu Asp Ile Ile Asn Gln Ala Val Lys Lys Leu Pro
 130 135 140
 Ile Pro Lys Val Met Arg Trp Gly Ser Ser Thr Phe Thr Phe Val Arg
 145 150 155 160
 Pro Val His Gly Leu Val Val Leu His Gly Gly Asp Ile Val Asn Val
 165 170 175
 Ser Val Leu Gly Leu Gln Ser Gly Asn Lys Thr Leu Gly His Arg Phe
 180 185 190
 Leu Ser Asp Gly Glu Ile Thr Ile Glu Asn Ala Asp Ser Tyr Ala Ala
 195 200 205
 Gln Met Arg Glu Gln Gly Lys Val Val Ala Ser Phe Ala Glu Arg Lys
 210 215 220
 Ala Ala Ile Gln Thr Val Leu Glu Gly Gln Ala Arg Arg Leu Asn Ala
 225 230 235 240
 Thr Ala Ala Ala Asp Glu Ala Leu Leu Asp Glu Val Thr Ala Leu Val
 245 250 255
 Glu Trp Pro Val Val Leu Glu Ala Gly Phe Glu Glu His Phe Leu Ala
 260 265 270
 Val Pro Gln Glu Cys Leu Ile Leu Thr Met Gln Gln Asn Gln Lys Tyr
 275 280 285
 Phe Pro Leu Leu Asp Gln Asn Gly Lys Leu Met Asn Arg Phe Leu Leu
 290 295 300

SEQLIST_PP019737.0004.txt

Val Ser Asn Leu Gln Thr Glu Asp Pro Ser His Ile Ile Gln Gly Asn
305 310 315 320

Glu Arg Val Leu Arg Ala Arg Leu Ser Asp Ala Glu Phe Phe Tyr Lys
325 330 335

Gln Asp Gln Lys Ala Thr Leu Glu Ser Arg Leu Pro Lys Leu Thr Asn
340 345 350

Val Val Tyr His Asn Lys Ile Gly Ser Gln Ala Glu Arg Ile Glu Arg
355 360 365

Leu Gln Ser Ile Ala Ala His Ile Ala Lys Ala Leu Gly Ala Asp Ala
370 375 380

Ala Ala Ala Glu Arg Ala Ala Arg Leu Ala Lys Ala Asp Leu Val Thr
385 390 395 400

Glu Met Val Gly Glu Phe Pro Glu Leu Gln Gly Thr Met Gly Lys Tyr
405 410 415

Tyr Ala Arg Leu Asp Gly Glu Thr Glu Glu Ile Thr Glu Ala Val Glu
420 425 430

Gln His Tyr Gln Pro Arg Phe Ala Gly Asp Asn Leu Pro Glu Gly Lys
435 440 445

Ile Ala Ala Ala Val Ala Leu Ala Asp Lys Leu Glu Thr Leu Val Gly
450 455 460

Ile Trp Gly Ile Gly Leu Ile Pro Thr Gly Asp Lys Asp Pro Tyr Ala
465 470 475 480

Leu Arg Arg Ala Ala Leu Gly Ile Leu Arg Met Leu Met Gln Tyr Gly
485 490 495

Leu Asp Val Asn Glu Leu Ile Gln Thr Ala Phe Asn Ser Phe Pro Gln
500 505 510

Gly Leu Leu Asn Glu Lys Thr Pro Ser Glu Thr Ala Asp Phe Met Gln
515 520 525

Ala Arg Leu Ala Val Leu Leu Gln Asn Asp Tyr Pro Gln Asp Ile Val
530 535 540

Ala Ala Val Leu Ala Lys Gln Pro Arg Arg Leu Asp Asp Leu Thr Ala
545 550 555 560

Lys Leu Gln Ala Val Ala Ala Phe Lys Gln Leu Pro Glu Ala Ala Ala
565 570 575

Leu Ala Ala Ala Asn Lys Arg Val Gln Asn Leu Leu Lys Lys Ala Asp
580 585 590

Ala Glu Leu Gly Ala Val Asn Glu Ser Leu Leu Gln Gln Asp Glu Glu
595 600 605

Lys Ala Leu Phe Ala Ala Ala Gln Gly Leu Gln Pro Lys Ile Ala Ala
610 615 620

Ala Val Ala Glu Gly Asn Phe Gln Thr Ala Leu Ser Glu Leu Ala Ser
625 630 635 640

SEQLIST_PP019737.0004.txt

Val Lys Pro Gln Val Asp Ala Phe Phe Asp Gly Val Met Val Met Ala
645 650 655

Glu Asp Ala Ala Val Lys Gln Asn Arg Leu Asn Leu Leu Asn Arg Leu
660 665 670

Ala Glu Gln Met Asn Ala Val Ala Asp Ile Ala Leu Leu Gly Glu
675 680 685

<210> 184
<211> 465
<212> PRT
<213> Neisseria meningitidis

<400> 184
Met Ser Gln Gly Lys Ile Val Gln Ile Ile Gly Ala Val Val Asp Val
1 5 10 15

Glu Phe Pro Arg Asp Met Ile Pro Arg Val Tyr Asp Ala Leu Lys Leu
20 25 30

Asp Glu Asn Gly Leu Thr Leu Glu Val Gln Gln Leu Leu Gly Asp Gly
35 40 45

Val Val Arg Ala Ile Ala Met Gly Ser Ser Asp Gly Leu Lys Arg Gly
50 55 60

Met Thr Val Ser Asn Thr Gly Ala Pro Ile Thr Val Pro Val Gly Lys
65 70 75 80

Gly Thr Leu Gly Arg Ile Val Asp Val Leu Gly Thr Pro Val Asp Glu
85 90 95

Ala Gly Pro Ile Asp Thr Asp Lys Ser Arg Ala Ile His Gln Ala Ala
100 105 110

Pro Lys Phe Asp Glu Leu Ser Ser Thr Thr Glu Leu Leu Glu Thr Gly
115 120 125

Ile Lys Val Ile Asp Leu Leu Cys Pro Phe Ala Lys Gly Gly Lys Val
130 135 140

Gly Leu Phe Gly Gly Ala Gly Val Gly Lys Thr Val Asn Met Met Glu
145 150 155 160

Leu Ile Asn Asn Ile Ala Lys Ala His Ser Gly Leu Ser Val Phe Ala
165 170 175

Gly Val Gly Glu Arg Thr Arg Glu Gly Asn Asp Phe Tyr His Glu Met
180 185 190

Lys Asp Ser Asn Val Leu Asp Lys Val Ala Met Val Tyr Gly Gln Met
195 200 205

Asn Glu Pro Pro Gly Asn Arg Leu Arg Val Ala Leu Thr Gly Leu Thr
210 215 220

Met Ala Glu Tyr Phe Arg Asp Glu Lys Asp Glu Asn Gly Lys Gly Arg
225 230 235 240

Asp Val Leu Phe Phe Val Asp Asn Ile Tyr Arg Tyr Thr Leu Ala Gly
245 250 255

SEQLIST_PP019737.0004.txt

Thr Glu Val Ser Ala Leu Leu Gly Arg Met Pro Ser Ala Val Gly Tyr
260 265 270
Gln Pro Thr Leu Ala Glu Glu Met Gly Arg Leu Gln Glu Arg Ile Thr
275 280 285
Ser Thr Gln Thr Gly Ser Ile Thr Ser Ile Gln Ala Val Tyr Val Pro
290 295 300
Ala Asp Asp Leu Thr Asp Pro Ser Pro Ala Thr Thr Phe Ala His Leu
305 310 315 320
Asp Ala Thr Val Val Leu Ser Arg Asp Ile Ala Ser Leu Gly Ile Tyr
325 330 335
Pro Ala Val Asp Pro Leu Asp Ser Thr Ser Arg Gln Leu Asp Pro Met
340 345 350
Val Leu Gly Gln Glu His Tyr Asp Val Ala Arg Gly Val Gln Ser Thr
355 360 365
Leu Gln Lys Tyr Lys Glu Leu Arg Asp Ile Ile Ala Ile Leu Gly Met
370 375 380
Asp Glu Leu Ser Asp Glu Asp Lys Leu Thr Val Met Arg Ala Arg Lys
385 390 395 400
Ile Gln Arg Phe Leu Ser Gln Pro Phe His Val Ala Glu Val Phe Thr
405 410 415
Gly Ser Pro Gly Lys Tyr Val Ala Leu Arg Asp Thr Ile Ala Gly Phe
420 425 430
Lys Ala Ile Leu Asn Gly Glu Tyr Asp His Leu Pro Glu Gln Ala Phe
435 440 445
Tyr Met Val Gly Ser Ile Glu Glu Ala Val Glu Lys Ala Lys Thr Leu
450 455 460

Asn
465

<210> 185
<211> 515
<212> PRT
<213> Neisseria meningitidis

<400> 185
Met Gln Leu Asn Pro Ala Glu Ile Ser Asp Leu Ile Lys Ala Lys Ile
1 5 10 15
Glu Asn Leu Ser Val Asn Ala Glu Val Arg Thr Cys Gly Thr Val Ile
20 25 30
Ser Val Thr Asp Gly Ile Val Arg Ile His Gly Leu Ser Asp Ala Met
35 40 45
Gln Gly Glu Met Leu Glu Phe Pro Gly Asn Thr Phe Gly Leu Ala Met
50 55 60
Asn Leu Glu Arg Asp Ser Val Gly Ala Val Val Leu Gly Glu Tyr Glu
65 70 75 80

SEQLIST_PP019737.0004.txt

His Ile Lys Glu Gly Asp Thr Val Thr Cys Thr Gly Arg Ile Leu Glu
85 90 95

Val Pro Val Gly Arg Glu Leu Val Gly Arg Val Val Asp Ala Leu Gly
100 105 110

Arg Pro Ile Asp Gly Lys Gly Pro Ile Asn Thr Thr Leu Thr Ala Pro
115 120 125

Ile Glu Lys Ile Ala Pro Gly Val Ile Ala Arg Lys Ser Val Asp Gln
130 135 140

Pro Met Gln Thr Gly Leu Lys Ala Ile Asp Ser Met Val Pro Val Gly
145 150 155 160

Arg Gly Gln Arg Glu Leu Ile Ile Gly Asp Arg Gln Thr Gly Lys Thr
165 170 175

Ala Val Ala Leu Asp Ala Ile Val Asn Gln Lys Gly Thr Gly Val Ile
180 185 190

Cys Ile Tyr Val Ala Ile Gly Gln Lys Ala Ser Ser Ile Ala Asn Val
195 200 205

Val Arg Lys Leu Glu Glu His Gly Ala Met Glu His Thr Ile Val Val
210 215 220

Ala Ala Thr Ala Ser Glu Ala Ala Ala Leu Gln Tyr Ile Ala Pro Tyr
225 230 235 240

Ser Gly Cys Thr Met Gly Glu Phe Phe Arg Asp Arg Gly Glu Asp Ala
245 250 255

Leu Ile Val Tyr Asp Asp Leu Ser Lys Gln Ala Val Ala Tyr Arg Gln
260 265 270

Ile Ser Leu Leu Leu Arg Arg Pro Pro Gly Arg Glu Ala Tyr Pro Gly
275 280 285

Asp Val Phe Tyr Leu His Ser Arg Leu Leu Glu Arg Ala Ala Arg Val
290 295 300

Asn Glu His Glu Val Glu Lys Leu Thr Asn Gly Glu Val Lys Gly Lys
305 310 315 320

Thr Gly Ser Leu Thr Ala Leu Pro Ile Ile Glu Thr Gln Ala Gly Asp
325 330 335

Val Ser Ala Phe Val Pro Thr Asn Val Ile Ser Ile Thr Asp Gly Gln
340 345 350

Ile Phe Leu Glu Thr Asp Leu Phe Asn Ala Gly Ile Arg Pro Ala Ile
355 360 365

Asn Ala Gly Ile Ser Val Ser Arg Val Gly Gly Ala Ala Gln Thr Lys
370 375 380

Val Ile Lys Lys Leu Gly Gly Gly Ile Arg Leu Ala Leu Ala Gln Tyr
385 390 395 400

Arg Glu Leu Ala Ala Phe Ser Gln Phe Ala Ser Asp Leu Asp Glu Ala
405 410 415

SEQLIST_PP019737.0004.txt

Thr Arg Lys Gln Leu Glu His Gly Glu Val Val Thr Glu Leu Met Lys
420 425 430

Gln Lys Gln Phe Ser Thr Leu Asn Thr Ala Glu Met Ala Leu Thr Leu
435 440 445

Trp Ala Ile Asn Asn Gly Ser Tyr Ser Asp Val Pro Val Ala Lys Ala
450 455 460

Leu Ala Phe Glu Ser Glu Phe Leu Ser Phe Val Arg Thr Gln His Pro
465 470 475 480

Glu Val Leu Glu Ala Val Asn Ala Ser Gly Ala Met Ser Asp Glu Ser
485 490 495

Glu Lys Thr Leu Glu Ala Ala Met Lys Ser Phe Lys Ser Ser Tyr Ala
500 505 510

Tyr Gln Ala
515

<210> 186
<211> 177
<212> PRT
<213> Neisseria meningitidis

<400> 186
Met Ala Glu Phe Ala Thr Ile Ala Arg Pro Tyr Ala Lys Ala Leu Phe
1 5 10 15

Gly Leu Ala Gln Glu Lys Asn Gln Ile Glu Ser Trp Leu Gly Gly Leu
20 25 30

Glu Lys Leu Ala Ala Val Val Gln Glu Gly Lys Val Ala Ser Leu Ile
35 40 45

Asp Arg Pro Glu Thr Asn Ala Ser Glu Lys Ala Asp Ile Leu Ile Asp
50 55 60

Leu Val Gly Leu Lys Asp Lys Glu Leu Lys Asn Phe Val Ile Val Leu
65 70 75 80

Ala Gly Gln Lys Arg Leu Ser Ile Leu Pro Glu Val Tyr Ala Gln Tyr
85 90 95

Gln Asp Leu Thr Leu Ser Phe Asn His Ile Lys Ser Ala Val Ile Tyr
100 105 110

Ser Ala Tyr Pro Leu Thr Asp Lys Gln Val Gly Glu Leu Val Gln Met
115 120 125

Leu Asn Lys Arg Phe Asp Ser Glu Leu Lys Ile Ser Val Glu Ile Glu
130 135 140

Pro Glu Leu Ile Gly Gly Ile Lys Val Glu Val Gly Asp Gln Val Leu
145 150 155 160

Asp Leu Ser Val Gln Gly Lys Leu Ser Ala Leu Tyr Thr Thr Met Thr
165 170 175

Asn

SEQLIST_PP019737.0004.txt

<210> 187
 <211> 156
 <212> PRT
 <213> Neisseria meningitidis

<400> 187
 Met Asn Ile Asn Ala Thr Leu Phe Ala Gln Ile Ile Val Phe Phe Gly
 1 5 10 15
 Leu Val Trp Phe Thr Met Lys Phe Val Trp Pro Pro Ile Ala Lys Ala
 20 25 30
 Leu Asp Glu Arg Ala Ala Lys Val Ala Glu Gly Leu Ala Ala Ala Glu
 35 40 45
 Arg Gly Lys Ser Asp Phe Glu Gln Ala Glu Lys Lys Val Ala Glu Leu
 50 55 60
 Leu Ala Glu Gly Arg Asn Gln Val Ser Glu Met Val Ala Asn Ala Glu
 65 70 75 80
 Lys Arg Ala Ala Lys Ile Val Glu Glu Ala Lys Glu Gln Ala Ser Ser
 85 90 95
 Glu Ala Ala Arg Ile Ala Ala Gln Ala Lys Ala Asp Val Glu Gln Glu
 100 105 110
 Leu Phe Arg Ala Arg Glu Ser Leu Arg Glu Gln Val Ala Val Leu Ala
 115 120 125
 Val Lys Gly Ala Glu Ser Ile Leu Arg Ser Glu Val Asp Ala Ser Lys
 130 135 140
 His Ala Lys Leu Leu Asp Thr Leu Lys Gln Glu Leu
 145 150 155

<210> 188
 <211> 201
 <212> PRT
 <213> Neisseria meningitidis

<400> 188
 Met Met Thr Leu Tyr Ser Gly Ile Thr Cys Pro Phe Ser His Arg Cys
 1 5 10 15
 Arg Phe Val Leu Tyr Glu Lys Gly Met Asp Phe Glu Ile Lys Asp Val
 20 25 30
 Asp Ile Tyr Asn Lys Pro Glu Asp Leu Ala Val Met Asn Pro Tyr Asn
 35 40 45
 Gln Val Pro Val Leu Val Glu Arg Asp Leu Val Leu His Glu Ser Asn
 50 55 60
 Ile Ile Asn Glu Tyr Ile Asp Glu Arg Phe Pro His Pro Gln Leu Met
 65 70 75 80
 Pro Gly Asp Pro Val Met Arg Gly Arg Gly Arg Leu Val Leu Tyr Arg
 85 90 95
 Met Glu Lys Glu Leu Phe Asn His Val Gln Val Leu Glu Asn Pro Ala
 100 105 110

SEQLIST_PP019737.0004.txt

Ala Thr Asn Lys Glu Gln Ala Lys Ala Arg Glu Ala Ile Gly Asn Gly
115 120 125

Leu Thr Met Leu Ala Pro Ser Phe Ser Lys Ser Lys Tyr Ile Leu Gly
130 135 140

Glu Asp Phe Ser Met Ile Asp Val Ala Leu Ala Pro Leu Leu Trp Arg
145 150 155 160

Leu Asp His Tyr Asp Val Lys Leu Gly Lys Ser Ala Ala Pro Leu Leu
165 170 175

Lys Tyr Ala Glu Arg Ile Phe Gln Arg Glu Ala Phe Ile Glu Ala Leu
180 185 190

Thr Pro Ala Glu Lys Ala Met Arg Lys
195 200

<210> 189
<211> 266
<212> PRT
<213> Neisseria meningitidis

<400> 189
Met Ser Pro Ser Pro Phe Ile Glu Met Lys Asp Val Ala Phe Ala Tyr
1 5 10 15

Gly Asp Arg Pro Ile Leu Lys Asn Ile Asn Phe Ser Ile Pro Gln Gly
20 25 30

Asn Phe Ala Ala Val Met Gly Gly Ser Gly Ser Gly Lys Thr Thr Leu
35 40 45

Met Arg Leu Ile Thr Gly Gln Ile Arg Pro Gln Ser Gly Gln Val Leu
50 55 60

Ile Glu Gly Arg Asp Leu Ala Gly Phe Ser Ala Asp Glu Leu Tyr Glu
65 70 75 80

His Arg Arg Arg Met Gly Val Leu Phe Gln His Gly Ala Leu Phe Thr
85 90 95

Asp Leu Ser Val Phe Asp Asn Ile Ala Phe Pro Met Arg Glu Leu Thr
100 105 110

Arg Leu Pro Glu Ala Val Ile Arg Asp Leu Val Leu Lys Leu Asn
115 120 125

Ala Val Gly Leu Arg Gly Val Glu Asn Leu Met Pro Ser Glu Leu Ser
130 135 140

Gly Gly Met Ser Arg Arg Val Ala Leu Ala Arg Thr Ile Ala Leu Asp
145 150 155 160

Pro Glu Ile Met Leu Tyr Asp Glu Pro Phe Thr Gly Leu Asp Pro Ile
165 170 175

Ser Leu Gly Val Ile Ala His Leu Ile Ser Arg Val Asn Lys Ala Leu
180 185 190

Arg Ser Thr Ser Ile Met Val Thr His Asp Ile Glu Lys Ser Leu Glu
195 200 205

SEQLIST_PP019737.0004.txt

Ile Val Asp Gln Val Ile Phe Leu Ala His Gly Glu Ile Met Phe Ser
 210 215 220
 Gly Ser Pro Gln Glu Met Arg Glu Leu Asp Ser Pro Trp Val Arg Gln
 225 230 235 240
 Phe Val Gly Gly Leu Ala Asp Gly Pro Val Ala Tyr Arg Tyr Pro Ala
 245 250 255
 Gln Thr Ser Leu Gln Gln Asp Leu Leu Gly
 260 265

<210> 190
 <211> 480
 <212> PRT
 <213> Neisseria meningitidis

<400> 190
 Met Lys Gln Leu Ala Met Tyr Ile Asn Gly Arg Phe Glu Asn Asp Phe
 1 5 10 15
 Asn Gly Glu Trp Arg Asp Val Leu Asn Pro Ser Thr Glu Glu Ala Ile
 20 25 30
 Ala Arg Glu Pro Lys Gly Gly Lys Ala Asp Val Asp Arg Ala Val Ala
 35 40 45
 Ala Ala Arg Ala Ala Gln Pro Ala Trp Glu Arg Leu Pro Ala Val Glu
 50 55 60
 Arg Gly Ala Tyr Leu Arg Lys Ile Ala Gln Gly Ile Arg Glu Arg Ala
 65 70 75 80
 Asp Glu Leu Thr Asp Thr Ile Val Ala Glu Gly Gly Lys Thr Lys Asp
 85 90 95
 Leu Ala Arg Val Glu Val Met Phe Thr Ala Asp Tyr Leu Asp Tyr Gln
 100 105 110
 Ala Glu Trp Ala Arg Arg Tyr Glu Gly Glu Ile Ile Gln Ser Asp Arg
 115 120 125
 Pro Arg Glu Asn Ile Leu Leu Phe Lys Arg Pro Leu Gly Val Ile Ala
 130 135 140
 Gly Ile Leu Pro Trp Asn Phe Pro Phe Phe Leu Ile Ala Arg Lys Met
 145 150 155 160
 Gly Pro Ala Leu Val Thr Gly Asn Thr Ile Val Val Lys Pro Ser Ser
 165 170 175
 Val Thr Pro Ile Asn Cys His Ile Phe Ala Glu Ile Val Asp Ala Val
 180 185 190
 Gly Leu Pro Ala Gly Val Phe Asn Val Val Asn Gly Pro Gly Ala Glu
 195 200 205
 Ile Gly Asn Ala Leu Ser Ala His Pro Gln Val Asp Met Val Ser Leu
 210 215 220
 Thr Gly Ser Val Glu Ala Gly Arg Gln Val Met Glu Ala Ala Ser Ala
 225 230 235 240

SEQLIST_PP019737.0004.txt

Asn Ile Thr Lys Val Ser Leu Glu Leu Gly Gly Lys Ala Pro Ala Ile
245 250 255
Val Leu Lys Asp Ala Asp Leu Asp Leu Ala Val Lys Ser Ile Leu Ala
260 265 270
Ser Arg Val Gly Asn Thr Gly Gln Ile Cys Asn Cys Ala Glu Arg Val
275 280 285
Tyr Val His Ser Ser Leu Lys Asp Ala Phe Ile Glu Lys Met Thr Ala
290 295 300
Ala Met Lys Gly Val Arg Tyr Gly Asn Pro Ala Glu Ala Glu Ala Gly
305 310 315 320
Ala Leu Glu Met Gly Pro Leu Ile Glu Glu Arg Ala Val Lys Ala Val
325 330 335
Ala Glu Lys Val Glu Arg Ala Val Lys Gln Gly Ala Lys Leu Val Cys
340 345 350
Gly Gly Lys Arg Ala Glu Gly Arg Gly Tyr Phe Phe Glu Pro Thr Leu
355 360 365
Leu Thr Asp Thr Asp Asn Ser Met Asp Ile Met Lys Glu Glu Thr Phe
370 375 380
Gly Pro Val Leu Pro Val Ser Ala Phe Asp Thr Leu Asp Gln Val Ile
385 390 395 400
Ala Leu Ala Asn Asp Cys Glu Phe Gly Leu Thr Ser Ser Val Tyr Thr
405 410 415
Thr Asn Leu Asn Glu Ala Phe Tyr Val Thr Arg Arg Leu Gln Phe Gly
420 425 430
Glu Thr Tyr Ile Asn Arg Glu Asn Phe Glu Ala Met Gln Gly Phe His
435 440 445
Ala Gly Trp Lys Lys Ser Gly Ile Gly Gly Ala Asp Gly Lys His Gly
450 455 460
Leu Glu Glu Tyr Leu Gln Thr Gln Val Val Tyr Leu Glu Thr Asp Ile
465 470 475 480

<210> 191
<211> 938
<212> PRT
<213> Neisseria meningitidis

<400> 191
Met Ser Asn Arg Pro Thr Leu Leu Leu Val Asp Gly Ser Ser Tyr Leu
1 5 10 15
Tyr Arg Ala Tyr His Ala Met Gly Gln Asn Leu Thr Ala Pro Asp Gly
20 25 30
Ala Pro Thr Gly Ala Leu Tyr Gly Val Leu Asn Met Leu Arg Arg Leu
35 40 45
Arg Ser Glu Tyr Pro His Asp Tyr Cys Ala Val Val Phe Asp Ala Lys
50 55 60

SEQLIST_PP019737.0004.txt

Gly Lys Asn Phe Arg His Gln Met Phe Glu Glu Tyr Lys Ala Thr Arg
 65 70 75 80
 Pro Pro Met Pro Asp Asp Leu Arg Pro Gln Ala Glu Ala Leu Pro Asp
 85 90 95
 Leu Val Arg Leu Thr Gly Trp Pro Val Leu Val Ile Gly Gln Val Glu
 100 105 110
 Ala Asp Asp Val Ile Gly Thr Leu Ala Lys Gln Gly Ala Glu His Gly
 115 120 125
 Leu Arg Val Ile Val Ser Thr Gly Asp Lys Asp Met Ala Gln Leu Val
 130 135 140
 Asp Glu Arg Val Thr Leu Val Asn Thr Met Ser Ser Glu Thr Leu Asp
 145 150 155 160
 Ile Glu Gly Val Lys Ala Lys Phe Gly Val Arg Pro Asp Gln Ile Arg
 165 170 175
 Asp Tyr Leu Ala Leu Met Gly Asp Lys Val Asp Asn Val Pro Gly Val
 180 185 190
 Glu Lys Cys Gly Pro Lys Thr Ala Val Lys Trp Leu Glu Ala Tyr Gly
 195 200 205
 Ser Leu Ala Gly Val Met Glu His Ala Ser Glu Ile Lys Gly Lys Val
 210 215 220
 Gly Glu Asn Leu Gln Ala Ala Leu Pro Gln Leu Pro Leu Ser Tyr Asp
 225 230 235 240
 Leu Val Thr Ile Lys Thr Asp Val Asp Leu His Ala Glu Leu Ser Asp
 245 250 255
 Gly Ile Glu Ser Leu Arg Arg Thr Thr Pro Lys Trp Ala Gln Leu Val
 260 265 270
 Val Asp Phe Lys Arg Trp Gly Phe Arg Thr Trp Leu Lys Glu Ala Glu
 275 280 285
 Ser Asn Met Asn Thr Gly Ser Thr Asp Asp Leu Phe Gly Ser Asp Ser
 290 295 300
 Ile Gly Glu Gln Ala Ala Leu Asn Ala Glu Met Pro Phe Glu Lys Gln
 305 310 315 320
 Ala Glu Lys Ala Thr Ala Pro Glu Lys Leu Asp Tyr Gln Ala Val Thr
 325 330 335
 Thr Glu Ala Gln Phe Ala Ala Leu Leu Asp Lys Leu Ser Arg Ala Asp
 340 345 350
 Thr Ile Gly Ile Asp Thr Glu Thr Thr Ser Leu Asp Ala Met Asn Ala
 355 360 365
 Ser Leu Val Gly Ile Ser Ile Ala Phe Gln Ala Gly Glu Ala Val Tyr
 370 375 380
 Ile Pro Val Gly His Ser Leu Thr Ala Ala Pro Glu Gln Leu Asp Leu
 385 390 395 400

SEQLIST_PP019737.0004.txt

Gln Asp Val Leu Gly Arg Leu Lys Pro His Leu Gly Asn Pro Ala Leu
 405 410 415
 Lys Lys Ile Gly Gln Asn Leu Lys Tyr Asp Gln His Val Phe Ala Asn
 420 425 430
 Tyr Gly Ile Ala Leu Asn Gly Ile Ala Gly Asp Ala Met Leu Ala Ser
 435 440 445
 Tyr Ile Ile Glu Ser His Leu Gly His Gly Leu Asp Glu Leu Ser Glu
 450 455 460
 Arg Trp Leu Gly Leu Glu Thr Ile Thr Tyr Glu Ser Leu Cys Gly Lys
 465 470 475 480
 Gly Ala Lys Gln Ile Gly Phe Ala Asp Val Ala Ile Gly Gln Ala Thr
 485 490 495
 Glu Tyr Ala Ala Gln Asp Ala Asp Phe Ala Leu Arg Leu Glu Ala His
 500 505 510
 Leu Arg Ala Gln Met Asp Glu Lys Gln Leu Glu Met Tyr Glu Lys Met
 515 520 525
 Glu Leu Pro Val Ala Gln Val Leu Phe Glu Met Glu Arg Asn Gly Val
 530 535 540
 Gln Ile Asp Arg Ala Glu Leu Ala Arg Gln Ser Ala Glu Leu Gly Ala
 545 550 555 560
 Glu Leu Met Lys Leu Glu Gln Glu Ala Tyr Ala Ala Ala Gly Gln Pro
 565 570 575
 Phe Asn Leu Asn Ser Pro Lys Gln Leu Gln Glu Ile Leu Phe Asp Lys
 580 585 590
 Met Gly Ile Pro Thr Lys Gly Leu Lys Lys Thr Ala Lys Gly Gly Ile
 595 600 605
 Ser Thr Asn Glu Ala Val Leu Glu Gln Leu Ala Pro Asp Tyr Pro Leu
 610 615 620
 Pro Lys Ile Ile Leu Gln Asn Arg Ser Leu Ala Lys Leu Lys Ser Thr
 625 630 635 640
 Tyr Thr Asp Lys Leu Pro Glu Met Ile Ser Pro Lys Asp Gly Arg Val
 645 650 655
 His Thr Thr Tyr Ala Gln Ala Val Ala Ile Thr Gly Arg Leu Ala Ser
 660 665 670
 Asn Asn Pro Asn Leu Gln Asn Ile Pro Ile Arg Thr Glu Glu Gly Arg
 675 680 685
 Lys Val Arg Arg Ala Phe Thr Ala Pro Gln Gly Ser Val Ile Val Ser
 690 695 700
 Ala Asp Tyr Ser Gln Ile Glu Leu Arg Ile Met Ala His Leu Ser Gly
 705 710 715 720
 Asp Lys Thr Leu Ile Ala Ala Phe Gln Asn Gly Glu Asp Val His Arg
 725 730 735

SEQLIST_PP019737.0004.txt

Arg Thr Ala Ala Glu Val Phe Gly Thr Ala Pro Glu Asn Val Ser Ser
740 745 750
Glu Gln Arg Arg Tyr Ala Lys Ser Ile Asn Phe Gly Leu Ile Tyr Gly
755 760 765
Met Gly Gln Tyr Gly Leu Ala Lys Ser Leu Gly Ile Asp Asn Leu Ser
770 775 780
Ala Lys Asn Phe Ile Asp Arg Tyr Phe Ala Arg Tyr Pro Gly Val Ala
785 790 795 800
Glu Tyr Met Gln Arg Thr Lys Glu Gln Ala Ala Ala Gln Gly Tyr Val
805 810 815
Glu Thr Leu Phe Gly Arg Arg Leu Tyr Leu Pro Asp Ile Arg Asn Lys
820 825 830
Asn Ala Asn Ala Arg Ala Gly Ala Glu Arg Ala Ala Ile Asn Ala Pro
835 840 845
Met Gln Gly Thr Ala Ser Asp Leu Ile Lys Arg Ala Met Ile Asp Val
850 855 860
Ser Arg Trp Leu Ser Glu Cys Glu Ala Ser Pro Trp Asp Glu Leu Leu
865 870 875 880
Gln Ser Lys Leu Ile Met Gln Val His Asp Glu Leu Val Leu Glu Val
885 890 895
Val Glu Thr Glu Leu Asp Phe Val Lys Glu Lys Leu Pro Gln Ile Met
900 905 910
Ala Lys Val Asp Gly Gly Leu Leu Asp Val Pro Leu Val Ala Glu Val
915 920 925
Gly Val Gly Glu Asn Trp Glu Glu Ala His
930 935

<210> 192
<211> 1320
<212> PRT
<213> Neisseria meningitidis

<400> 192
Met Ser Val Val Leu Pro Leu Arg Gly Val Thr Ala Leu Ser Asp Phe
1 5 10 15
Arg Val Glu Lys Leu Leu Gln Lys Ala Ala Ala Leu Gly Leu Pro Glu
20 25 30
Val Lys Leu Ser Ser Glu Phe Trp Tyr Phe Val Gly Ser Glu Lys Ala
35 40 45
Leu Asp Ala Ala Thr Val Glu Lys Leu Gln Ala Leu Leu Ala Ala Gln
50 55 60
Ser Val Glu Gln Thr Pro Lys Ala Arg Glu Gly Leu His Leu Phe Leu
65 70 75 80
Val Thr Pro Arg Leu Gly Thr Ile Ser Pro Trp Ala Ser Lys Ala Thr
85 90 95

SEQLIST_PP019737.0004.txt

Asn Ile Ala Glu Asn Cys Gly Leu Ala Gly Ile Glu Arg Ile Glu Arg
 100 105 110
 Gly Met Ala Val Trp Leu Glu Gly Arg Leu Asn Asp Glu Gln Lys Gln
 115 120 125
 Gln Trp Ala Ala Leu Leu His Asp Arg Met Thr Glu Ser Val Leu Pro
 130 135 140
 Asp Phe Gln Thr Ala Ser Lys Leu Phe His His Leu Glu Ser Glu Thr
 145 150 155 160
 Phe Ser Gly Val Asp Val Leu Gly Gly Gly Lys Glu Ala Leu Val Lys
 165 170 175
 Ala Asn Thr Glu Met Gly Leu Ala Leu Ser Ala Asp Glu Ile Asp Tyr
 180 185 190
 Leu Val Glu Asn Tyr Gln Ala Leu Gln Arg Asn Pro Ser Asp Val Glu
 195 200 205
 Leu Met Met Phe Ala Gln Ala Asn Ser Glu His Cys Arg His Lys Ile
 210 215 220
 Phe Asn Ala Asp Phe Ile Leu Asn Gly Glu Lys Gln Pro Lys Ser Leu
 225 230 235 240
 Phe Gly Met Ile Arg Asp Thr His Asn Ala His Pro Glu Gly Thr Val
 245 250 255
 Val Ala Tyr Lys Asp Asn Ser Ser Val Ile Glu Gly Ala Lys Ile Glu
 260 265 270
 Arg Phe Tyr Pro Asn Ala Ala Glu Asn Gln Gly Tyr Arg Phe His Glu
 275 280 285
 Glu Asp Thr His Ile Ile Met Lys Val Glu Thr His Asn His Pro Thr
 290 295 300
 Ala Ile Ala Pro Phe Ala Gly Ala Ala Thr Gly Ala Gly Gly Glu Ile
 305 310 315 320
 Arg Asp Glu Gly Ala Thr Gly Lys Gly Ser Arg Pro Lys Ala Gly Leu
 325 330 335
 Thr Gly Phe Thr Val Ser Asn Leu Asn Ile Pro Asp Leu Lys Gln Pro
 340 345 350
 Trp Glu Gln Asp Tyr Gly Lys Pro Glu His Ile Ser Ser Pro Leu Asp
 355 360 365
 Ile Met Ile Glu Gly Pro Ile Gly Gly Ala Ala Phe Asn Asn Glu Phe
 370 375 380
 Gly Arg Pro Asn Leu Leu Gly Tyr Phe Arg Thr Phe Glu Glu Lys Phe
 385 390 395 400
 Asp Gly Gln Val Arg Gly Tyr His Lys Pro Ile Met Ile Ala Gly Gly
 405 410 415
 Leu Gly Ser Ile Gln Ala Gln Gln Thr His Lys Asp Glu Ile Pro Glu
 420 425 430

SEQLIST_PP019737.0004.txt

Gly Ala Leu Leu Ile Gln Leu Gly Gly Pro Gly Met Leu Ile Gly Leu
 435 440 445
 Gly Gly Gly Ala Ala Ser Ser Met Asp Thr Gly Thr Asn Asp Ala Ser
 450 455 460
 Leu Asp Phe Asn Ser Val Gln Arg Gly Asn Pro Glu Ile Glu Arg Arg
 465 470 475 480
 Ala Gln Glu Val Ile Asp Arg Cys Trp Gln Leu Gly Gly Lys Asn Pro
 485 490 495
 Ile Ile Ser Ile His Asp Val Gly Ala Gly Gly Leu Ser Asn Ala Phe
 500 505 510
 Pro Glu Leu Val Asn Asp Ala Arg Arg Gly Ala Val Phe Lys Leu Arg
 515 520 525
 Glu Val Pro Leu Glu Glu His Gly Leu Asn Pro Leu Gln Ile Trp Cys
 530 535 540
 Asn Glu Ser Gln Glu Arg Tyr Val Leu Ser Ile Leu Glu Lys Asp Leu
 545 550 555 560
 Asp Ala Phe Arg Ala Ile Cys Glu Arg Glu Arg Cys Pro Phe Ala Val
 565 570 575
 Val Gly Thr Ala Thr Asp Asp Gly His Leu Lys Val Arg Asp Asp Leu
 580 585 590
 Phe Ala Asn Asn Pro Val Asp Leu Pro Leu Asn Val Leu Leu Gly Lys
 595 600 605
 Leu Pro Lys Thr Thr Arg Thr Asp Lys Thr Val Ala Pro Ser Lys Lys
 610 615 620
 Pro Phe His Ala Gly Asp Ile Asp Ile Thr Glu Ala Ala Tyr Arg Val
 625 630 635 640
 Leu Arg Leu Pro Ala Val Ala Ala Lys Asn Phe Leu Ile Thr Ile Gly
 645 650 655
 Asp Arg Ser Val Gly Gly Leu Thr His Arg Asp Gln Met Val Gly Lys
 660 665 670
 Tyr Gln Thr Pro Val Ala Asp Cys Ala Val Thr Met Met Gly Phe Asn
 675 680 685
 Thr Tyr Arg Gly Glu Ala Met Ser Met Gly Glu Lys Pro Thr Val Ala
 690 695 700
 Leu Phe Asp Ala Pro Ala Ser Gly Arg Met Cys Val Gly Glu Ala Ile
 705 710 715 720
 Thr Asn Ile Ala Ala Val Asn Ile Gly Asp Ile Gly Asn Ile Lys Leu
 725 730 735
 Ser Ala Asn Trp Met Ala Ala Cys Gly Asn Glu Gly Glu Asp Glu Lys
 740 745 750
 Leu Tyr Arg Thr Val Glu Ala Val Ser Lys Ala Cys Gln Ala Leu Asp
 755 760 765

SEQLIST_PP019737.0004.txt

Leu Ser Ile Pro Val Gly Lys Asp Ser Leu Ser Met Lys Thr Val Trp
 770 775 780
 Gln Asp Gly Glu Glu Lys Lys Ser Val Val Ser Pro Leu Ser Leu Ile
 785 790 795 800
 Ile Ser Ala Phe Ala Pro Val Lys Asp Val Arg Lys Thr Val Thr Pro
 805 810 815
 Glu Leu Lys Asn Val Glu Asp Ser Val Leu Leu Phe Val Asp Leu Gly
 820 825 830
 Phe Gly Lys Ala Arg Met Gly Gly Ser Ala Phe Gly Gln Val Tyr Asn
 835 840 845
 Asn Met Ser Gly Asp Ala Pro Asp Leu Asp Asp Thr Gly Arg Leu Lys
 850 855 860
 Ala Phe Tyr Ser Val Ile Gln Gln Leu Val Ala Glu Asn Lys Leu Leu
 865 870 875 880
 Ala Tyr His Asp Arg Ser Asp Gly Gly Leu Phe Ala Val Leu Val Glu
 885 890 895
 Met Ala Phe Ala Gly Arg Cys Gly Leu Asp Ile Asp Leu Asn Leu Leu
 900 905 910
 Leu Ala Gln Thr Phe Ile Thr Asn His Thr Ala Leu Ser Gln Ser Leu
 915 920 925
 Arg Thr Glu Glu Val Lys Ala Leu Ala Glu Trp Gln Glu Thr Ile Ala
 930 935 940
 Arg Thr Leu Phe Asn Glu Glu Leu Gly Ala Val Ile Gln Val Arg Lys
 945 950 955 960
 Gln Asp Val Ala Asp Ile Ile Asn Leu Phe Tyr Gln Gln Gln Leu His
 965 970 975
 His Asn Val Phe Glu Ile Gly Thr Leu Thr Asp Glu Asn Thr Leu Ile
 980 985 990
 Ile Arg Asp Gly Gln Thr His Leu Ile Ser Asp Asn Leu Ile Lys Leu
 995 1000 1005
 Gln Gln Thr Trp Gln Glu Thr Ser His Gln Ile Gln Arg Leu Arg Asp
 1010 1015 1020
 Asn Pro Ala Cys Ala Asp Ser Glu Phe Ala Leu Ile Gly Asp Asn Glu
 1025 1030 1035 1040
 Arg Ser Ala Leu Phe Ala Asp Val Lys Phe Asp Val Asn Glu Asp Ile
 1045 1050 1055
 Ala Ala Pro Phe Ile Asn Ser Gly Ala Lys Pro Lys Ile Ala Ile Leu
 1060 1065 1070
 Arg Glu Gln Gly Val Asn Gly Gln Ile Glu Met Ala Ala Ala Phe Thr
 1075 1080 1085
 Arg Ala Gly Phe Asp Ala Tyr Asp Val His Met Ser Asp Leu Met Ala
 1090 1095 1100

SEQLIST_PP019737.0004.txt

Gly Arg Ile His Leu Ala Asp Phe Lys Met Leu Ala Ala Cys Gly Gly
1105 1110 1115 1120

Phe Ser Tyr Gly Asp Val Leu Gly Ala Gly Glu Gly Trp Ala Lys Ser
1125 1130 1135

Ile Leu Phe His Pro Ala Leu Arg Asp Gln Phe Ala Ala Phe Phe Ala
1140 1145 1150

Asp Pro Asp Thr Leu Thr Leu Gly Val Cys Asn Gly Cys Gln Met Val
1155 1160 1165

Ser Asn Leu Ala Glu Ile Ile Pro Gly Thr Ala Gly Trp Pro Lys Phe
1170 1175 1180

Lys Arg Asn Leu Ser Glu Gln Phe Glu Ala Arg Leu Ser Met Val His
1185 1190 1195 1200

Val Pro Lys Ser Ala Ser Leu Ile Leu Asn Glu Met Gln Gly Ser Ser
1205 1210 1215

Leu Pro Val Val Val Ser His Gly Glu Gly Arg Ala Asp Phe Ala Leu
1220 1225 1230

His Gly Gly Asn Ile Ser Ala Asp Leu Gly Ile Ala Leu Gln Tyr Ile
1235 1240 1245

Asp Gly Gln Asn Gln Val Thr Gln Thr Tyr Pro Leu Asn Pro Asn Gly
1250 1255 1260

Ser Pro Gln Gly Ile Ala Gly Val Thr Asn Ala Asp Gly Arg Ile Thr
1265 1270 1275 1280

Ile Met Met Pro His Pro Glu Arg Val Tyr Arg Ala Ala Gln Met Ser
1285 1290 1295

Trp Lys Pro Glu Gly Trp Thr Glu Leu Ser Gly Trp Tyr Arg Leu Phe
1300 1305 1310

Ala Gly Ala Arg Lys Ala Leu Gly
1315 1320

<210> 193
<211> 302
<212> PRT
<213> Neisseria meningitidis

<400> 193
Met Asn Gln Thr Ala Ile Asn Arg Ala Asp Val Arg Thr Arg Phe Ile
1 5 10 15

Phe Asp Asp Met Pro Val Arg Gly Leu His Val Arg Leu Glu Asn Val
20 25 30

Trp Gln His Ile Val Lys Gln Lys Asn Tyr Pro Ala Ala Ile Arg Arg
35 40 45

Ala Leu Gly Glu Leu Leu Ala Ala Gly Val Leu Leu Ser Gly Asn Leu
50 55 60

Lys Asn Glu Gly Thr Leu Ile Val Gln Val Gln Gly Arg Gly Arg Leu
65 70 75 80

SEQLIST_PP019737.0004.txt

Lys Met Leu Val Ala Glu Ala Ala Ser Asp Arg Thr Val Arg Ala Thr
85 90 95
Ala Arg Trp Asp Glu Thr Ala Glu Ile Ala Asp Asp Glu Ser Leu Gly
100 105 110
Asp Leu Leu Gly Glu Gly Gly Val Phe Val Leu Thr Leu Gln Pro Lys
115 120 125
Asp Gly Glu Pro Trp Gln Gly Val Val Pro Leu Glu Gly Gly Gly Ile
130 135 140
Ala Gln Met Leu Val Asn Tyr Met Lys Arg Ser Glu Gln Leu Asp Thr
145 150 155 160
His Ile Val Leu Ser Ala Ser Asp Glu Ala Ala Gly Gly Leu Leu Val
165 170 175
Gln Arg Leu Pro Glu Glu Val Leu Asp Glu Glu Ala Trp Glu His Val
180 185 190
Ser Thr Leu Ala Arg Thr Leu Thr Ala Glu Glu Leu Ala Gly Leu Asp
195 200 205
Ala Gln His Val Leu Tyr Arg Leu Phe His Glu Thr Pro Pro Arg Val
210 215 220
Phe Glu Pro Glu Thr Phe Glu Phe Ser Cys Thr Cys Ser Arg Gly Lys
225 230 235 240
Val Ser Asp Met Leu Leu Met Leu Gly Gly Glu Glu Val Gly Gly Val
245 250 255
Val Val Glu Gln Gly Ser Ile Glu Val Asp Cys Asp Phe Cys His Ser
260 265 270
Lys Tyr Val Phe Asp Glu Thr Asp Val Asn Ala Leu Phe Gly Glu Asp
275 280 285
Val Val Gly Val Ala Lys Gly Leu Pro Arg His Thr Val Gln
290 295 300

<210> 194

<211> 331

<212> PRT

<213> Neisseria meningitidis

<400> 194

Met Lys Lys Ser Leu Ile Ala Leu Thr Leu Ala Ala Leu Pro Val Ala
1 5 10 15
Ala Met Ala Asp Val Thr Leu Tyr Gly Thr Ile Lys Ala Gly Val Glu
20 25 30
Thr Ser Arg Ser Val Phe His Gln Asn Gly Gln Val Thr Glu Val Thr
35 40 45
Thr Ala Thr Gly Ile Val Asp Leu Gly Ser Lys Ile Gly Phe Lys Gly
50 55 60
Gln Glu Asp Leu Gly Asn Gly Leu Lys Ala Ile Trp Gln Val Glu Gln
65 70 75 80

SEQLIST_PP019737.0004.txt

Lys Ala Ser Ile Ala Gly Thr Asp Ser Gly Trp Gly Asn Arg Gln Ser
85 90 95

Phe Ile Gly Leu Lys Gly Gly Phe Gly Lys Leu Arg Val Gly Arg Leu
100 105 110

Asn Ser Val Leu Lys Asp Thr Gly Asp Ile Asn Pro Trp Asp Ser Lys
115 120 125

Ser Asp Tyr Leu Gly Val Asn Lys Ile Ala Glu Pro Glu Ala Arg Leu
130 135 140

Ile Ser Val Arg Tyr Asp Ser Pro Glu Phe Ala Gly Leu Ser Gly Ser
145 150 155 160

Val Gln Tyr Ala Leu Asn Asp Asn Ala Gly Arg His Asn Ser Glu Ser
165 170 175

Tyr His Ala Gly Phe Asn Tyr Lys Asn Gly Gly Phe Phe Val Gln Tyr
180 185 190

Gly Gly Ala Tyr Lys Arg His His Gln Val Gln Glu Gly Leu Asn Ile
195 200 205

Glu Lys Tyr Gln Ile His Arg Leu Val Ser Gly Tyr Asp Asn Asp Ala
210 215 220

Leu Tyr Ala Ser Val Ala Val Gln Gln Gln Asp Ala Lys Leu Thr Asp
225 230 235 240

Ala Ser Asn Ser His Asn Ser Gln Thr Glu Val Ala Ala Thr Leu Ala
245 250 255

Tyr Arg Phe Gly Asn Val Thr Pro Arg Val Ser Tyr Ala His Gly Phe
260 265 270

Lys Gly Leu Val Asp Asp Ala Asp Ile Gly Asn Glu Tyr Asp Gln Val
275 280 285

Val Val Gly Ala Glu Tyr Asp Phe Ser Lys Arg Thr Ser Ala Leu Val
290 295 300

Ser Ala Gly Trp Leu Gln Glu Gly Lys Gly Glu Asn Lys Phe Val Ala
305 310 315 320

Thr Ala Gly Gly Val Gly Leu Arg His Lys Phe
325 330

<210> 195
<211> 143
<212> PRT
<213> Neisseria meningitidis

<400> 195
Met Lys Thr Phe Ser Ala Lys Pro His Glu Val Lys Arg Glu Trp Phe
1 5 10 15

Val Ile Asp Ala Gln Asp Lys Val Leu Gly Arg Val Ala Ala Glu Val
20 25 30

Ala Ser Arg Leu Arg Gly Lys His Lys Pro Glu Tyr Thr Pro His Val
35 40 45

SEQLIST_PP019737.0004.txt

Asp Thr Gly Asp Tyr Ile Ile Val Ile Asn Ala Asp Lys Leu Arg Val
50 55 60
Thr Gly Ala Lys Phe Glu Asp Lys Lys Tyr Phe Arg His Ser Gly Phe
65 70 75 80
Pro Gly Gly Ile Tyr Glu Arg Thr Phe Arg Glu Met Gln Glu Gln Phe
85 90 95
Pro Gly Arg Ala Leu Glu Gln Ala Val Lys Gly Met Leu Pro Lys Gly
100 105 110
Pro Leu Gly Tyr Ala Met Ile Lys Lys Leu Lys Val Tyr Ala Gly Ala
115 120 125
Glu His Ala His Ala Ala Gln Gln Pro Lys Val Leu Glu Leu Lys
130 135 140

<210> 196
<211> 371
<212> PRT
<213> Neisseria meningitidis

<400> 196
Met Lys Val Gly Phe Val Gly Trp Arg Gly Met Val Gly Ser Val Leu
1 5 10 15
Met Gln Arg Met Lys Glu Glu Asn Asp Phe Ala His Ile Pro Glu Ala
20 25 30
Phe Phe Phe Thr Thr Ser Asn Val Gly Gly Ala Ala Pro Asp Phe Gly
35 40 45
Gln Ala Ala Lys Thr Leu Leu Asp Ala Asn Asn Val Ala Glu Leu Ala
50 55 60
Lys Met Asp Ile Ile Val Thr Cys Gln Gly Gly Asp Tyr Thr Lys Ser
65 70 75 80
Val Phe Gln Ala Leu Arg Asp Ser Gly Trp Asn Gly Tyr Trp Ile Asp
85 90 95
Ala Ala Ser Ser Leu Arg Met Lys Asp Asp Ala Ile Ile Val Leu Asp
100 105 110
Pro Val Asn Arg Asp Val Leu Asp Asn Gly Leu Lys Asn Gly Val Lys
115 120 125
Asn Tyr Ile Gly Gly Asn Cys Thr Val Ser Leu Met Leu Met Ala Leu
130 135 140
Gly Gly Leu Phe Gln Asn Asp Leu Val Glu Trp Ala Thr Ser Met Thr
145 150 155 160
Tyr Gln Ala Ala Ser Gly Ala Gly Ala Lys Asn Met Arg Glu Leu Ile
165 170 175
Ser Gly Met Gly Ala Val His Ala Gln Val Ala Asp Ala Leu Ala Asp
180 185 190
Pro Ala Gly Ser Ile Leu Asp Ile Asp Arg Lys Val Ser Asp Phe Leu
195 200 205

SEQLIST_PP019737.0004.txt

Arg Ser Glu Asp Tyr Pro Lys Ala Asn Phe Gly Val Pro Leu Ala Gly
 210 215 220
 Ser Leu Ile Pro Trp Ile Asp Val Asp Leu Gly Asn Gly Gln Ser Lys
 225 230 235 240
 Glu Glu Trp Lys Gly Gly Val Glu Thr Asn Lys Ile Leu Gly Arg Ser
 245 250 255
 Asp Asn Pro Thr Val Ile Asp Gly Leu Cys Val Arg Val Gly Ala Met
 260 265 270
 Arg Cys His Ser Gln Ala Ile Thr Leu Lys Leu Lys Lys Asp Leu Pro
 275 280 285
 Val Ser Glu Ile Glu Thr Ile Leu Ala Gly Ala Asn Asp Trp Val Lys
 290 295 300
 Val Ile Pro Asn Glu Lys Glu Ala Ser Ile His Glu Leu Thr Pro Ala
 305 310 315 320
 Lys Val Thr Gly Thr Leu Ser Val Pro Val Gly Arg Ile Arg Lys Leu
 325 330 335
 Gly Met Gly Gly Glu Tyr Ile Ser Ala Phe Thr Val Gly Asp Gln Leu
 340 345 350
 Leu Trp Gly Ala Ala Glu Pro Leu Arg Arg Val Leu Arg Ile Val Leu
 355 360 365
 Gly Ser Leu
 370

<210> 197
 <211> 384
 <212> PRT
 <213> Neisseria meningitidis

<400> 197
 Met Lys Phe Ile Asp Glu Ala Lys Ile Glu Val Ala Ala Gly Lys Gly
 1 5 10 15
 Gly Asn Gly Ala Thr Ser Phe Arg Arg Glu Lys Phe Val Pro Arg Gly
 20 25 30
 Gly Pro Asp Gly Gly Asp Gly Gly Lys Gly Gly Ser Val Trp Ala Glu
 35 40 45
 Ala Asp Glu Asn Thr Asn Thr Leu Val Glu Tyr Arg Phe Val Lys Arg
 50 55 60
 Tyr Gln Ala Lys Asn Gly Glu Lys Gly His Gly Ser Asp Arg Tyr Gly
 65 70 75 80
 Ala Gly Ala Asp Asp Ile Val Leu Lys Met Pro Val Gly Thr Leu Ile
 85 90 95
 Arg Asp Leu Asp Thr Gly Glu Thr Val Ala Asp Leu Thr Tyr His Gly
 100 105 110
 Gln Arg Val Cys Leu Ala Lys Gly Gly Lys Gly Gly Leu Gly Asn Ile
 115 120 125

SEQLIST_PP019737.0004.txt

His Phe Lys Ser Ser Val Asn Arg Ala Pro Lys Gln Ser Thr Pro Gly
130 135 140
Glu Glu Gly Glu Ala Arg Ser Leu Gln Leu Glu Leu Lys Val Leu Ala
145 150 155 160
Asp Val Gly Leu Leu Gly Met Pro Asn Ala Gly Lys Ser Thr Leu Ile
165 170 175
Thr Ala Val Ser Ala Ala Arg Pro Lys Ile Ala Asn Tyr Pro Phe Thr
180 185 190
Thr Leu His Pro Asn Leu Gly Val Val Arg Ile Asp Glu Asn His Ser
195 200 205
Phe Val Met Ala Asp Ile Pro Gly Leu Ile Glu Gly Ala Ala Glu Gly
210 215 220
Ala Gly Leu Gly His Arg Phe Leu Lys His Leu Ser Arg Thr Gly Leu
225 230 235 240
Leu Leu His Val Val Asp Leu Ala Pro Phe Asp Glu Thr Val Asn Pro
245 250 255
Ala Glu Glu Ala Leu Ala Ile Ile Asn Glu Leu Arg Lys Tyr Asp Glu
260 265 270
Glu Leu Tyr Gly Lys Pro Arg Trp Leu Val Leu Asn Lys Leu Asp Met
275 280 285
Leu Asp Glu Glu Glu Ala Gln Thr Arg Thr Ala Ala Phe Leu Glu Ala
290 295 300
Val Gly Trp Asp Tyr Pro Lys Pro Asp Asp Arg Phe Gln Phe Asp Met
305 310 315 320
Glu Thr Pro Arg Leu Phe Gln Ile Ser Ala Leu Thr His Gln Gly Thr
325 330 335
Gln Glu Leu Val His Gln Ile Asn Gln Tyr Leu Thr Glu Lys Lys Arg
340 345 350
Ile Glu Ala Glu Lys Ala Glu Ala Glu Lys Ala Ala Ala Asn Val Glu
355 360 365
Ile Ile Glu Gln Gln Pro Lys Thr Asp Thr Gly Val Phe Lys Pro Glu
370 375 380

<210> 198
<211> 242
<212> PRT
<213> Neisseria meningitidis

<400> 198
Met Ser Gln Ile Thr Met Arg Gln Met Ile Glu Ala Gly Val His Phe
1 5 10 15
Gly His Gln Thr Arg Phe Trp Asn Pro Lys Met Ala Gln Tyr Ile Phe
20 25 30
Gly Ala Arg Asn Lys Ile His Ile Val Asn Leu Glu Lys Thr Leu Pro
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40

45

Met Phe Gln Asp Ala Gln Glu Ala Val Arg Arg Leu Val Ala Asn Lys
 50 55 60
 Gly Thr Val Leu Phe Val Gly Thr Lys Arg Gln Ala Arg Asp Ile Ile
 65 70 75 80
 Arg Glu Glu Ala Thr Arg Ala Gly Met Pro Phe Val Asp Tyr Arg Trp
 85 90 95
 Leu Gly Gly Met Leu Thr Asn Tyr Lys Thr Val Lys Gln Ser Ile Lys
 100 105 110
 Arg Leu Glu Glu Lys Thr Ala Ala Leu Glu Asn Ala Ala Glu Ser Gly
 115 120 125
 Phe Ser Lys Lys Glu Ile Leu Glu Met Gln Arg Asp Val Glu Lys Leu
 130 135 140
 Glu Arg Ser Leu Gly Gly Ile Lys Asn Met Lys Gly Leu Pro Asp Ala
 145 150 155 160
 Ile Phe Val Ile Asp Thr Gly Tyr Gln Lys Gly Thr Leu Val Glu Ala
 165 170 175
 Glu Lys Leu Gly Ile Pro Val Ile Ala Val Val Asp Thr Asn Asn Ser
 180 185 190
 Pro Asp Gly Val Lys Tyr Val Ile Pro Gly Asn Asp Asp Ser Ala Lys
 195 200 205
 Ala Ile Arg Leu Tyr Cys Arg Gly Ile Ala Asp Ala Val Leu Glu Gly
 210 215 220
 Lys Asn Gln Ala Leu Gln Glu Thr Val Ala Ala Ala Gln Glu Ala Ala
 225 230 235 240
 Ala Glu

<210> 199
 <211> 284
 <212> PRT
 <213> Neisseria meningitidis

<400> 199
 Met Ala Glu Ile Thr Ala Lys Met Val Ala Asp Leu Arg Ala Ala Thr
 1 5 10 15
 Gly Leu Gly Met Met Glu Cys Lys Lys Ala Leu Val Glu Ala Glu Gly
 20 25 30
 Asn Phe Asp Lys Ala Glu Glu Ile Leu Arg Ile Lys Ser Gly Ala Lys
 35 40 45
 Ala Gly Lys Leu Ala Gly Arg Thr Ala Ala Glu Gly Val Leu Ala Tyr
 50 55 60
 Ala Ile Asn Gly Asn Val Gly Ala Leu Val Glu Val Asn Cys Glu Thr
 65 70 75 80
 Asp Phe Val Ala Lys Asp Ala Gly Phe Val Glu Phe Ala Asn Phe Val
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85

90

95

Ala Lys Thr Ala Ala Glu Lys Lys Pro Ala Ser Val Glu Glu Leu Ser
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Glu Leu Val Glu Ala Glu Arg Lys Ala Ile Ile Ala Lys Leu Gly Glu
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130 135 140
Val Ala Tyr Ile His Gly Ala Leu Ala Thr Glu Gly Val Leu Val Glu
145 150 155 160
Tyr Lys Gly Ser Glu Asp Val Ala Arg Lys Ile Gly Met His Ile Val
165 170 175
Ala Ala Lys Pro Gln Cys Val Ser Glu Ala Glu Val Asp Ala Glu Thr
180 185 190
Val Glu Lys Glu Arg His Ile Tyr Thr Glu Gln Ala Ile Ala Ser Gly
195 200 205
Lys Pro Ala Asp Ile Ala Ala Lys Met Val Glu Gly Arg Ile Arg Lys
210 215 220
Phe Leu Ala Glu Ile Thr Leu Asn Gly Gln Ala Phe Val Met Asn Pro
225 230 235 240
Asp Gln Thr Val Ala Gln Phe Ser Lys Glu Asn Gly Thr Glu Val Ile
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<213> Neisseria meningitidis

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35 40 45
Val Gly Ile Val Val Gly Gly Gly Asn Ile Phe Arg Gly Val Ser Ala
50 55 60
Gln Ala Gly Ser Met Asp Arg Ala Thr Ala Asp Tyr Met Gly Met Met
65 70 75 80
Ala Thr Val Met Asn Ala Leu Ala Leu Lys Asp Ala Phe Glu Thr Leu
85 90 95
Gly Ile Lys Ala Arg Val Gln Ser Ala Leu Ser Met Gln Gln Ile Ala

100

105

110

Glu Thr Tyr Ala Arg Pro Lys Ala Ile Gln Tyr Leu Glu Glu Gly Lys
 115 120 125
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 130 135 140
 Thr Ala Ala Ala Leu Arg Gly Ala Glu Met Asn Cys Asp Val Met Leu
 145 150 155 160
 Lys Ala Thr Asn Val Asp Gly Val Tyr Thr Ala Asp Pro Lys Lys Asp
 165 170 175
 Pro Ser Ala Thr Arg Tyr Glu Thr Ile Thr Phe Asp Glu Ala Leu Leu
 180 185 190
 Lys Asn Leu Lys Val Met Asp Ala Thr Ala Phe Ala Leu Cys Arg Glu
 195 200 205
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<213> Neisseria meningitidis

<400> 201

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 35 40 45
 Gly Gln Pro Asp Glu Asp Asp Tyr Asn Ala Ile Pro Lys Lys Ala Met
 50 55 60
 Glu Tyr Gly Ala Glu Asn Ala Arg Leu Ile Asp Cys Arg Ala Gln Leu
 65 70 75 80
 Ala His Glu Gly Ile Ala Ala Ile Gln Cys Gly Ala Phe His Val Ser
 85 90 95
 Thr Gly Gly Ile Ala Tyr Phe Asn Thr Thr Pro Leu Gly Arg Ala Val
 100 105 110
 Thr Gly Thr Met Leu Val Ser Ala Met Lys Glu Asp Asp Val Asn Ile
 115 120 125
 Trp Gly Asp Gly Ser Thr Tyr Lys Gly Asn Asp Ile Glu Arg Phe Tyr
 130 135 140
 Arg Tyr Gly Leu Leu Thr Asn Pro Ala Leu Lys Ile Tyr Lys Pro Trp
 145 150 155 160
 Leu Asp Gln Gln Phe Ile Asp Glu Leu Gly Gly Arg His Glu Met Ser

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165

170

175

Glu Phe Leu Ile Ala Asn Gly Phe Asn Tyr Lys Met Ser Val Glu Lys
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Ala Tyr Ser Thr Asp Ser Asn Met Leu Gly Ala Thr His Glu Ala Lys
195 200 205
Asp Leu Glu Phe Leu Asn Ser Gly Ile Lys Ile Val Lys Pro Ile Met
210 215 220
Gly Val Ala Phe Trp Asp Glu Asn Val Glu Val Ser Pro Glu Glu Val
225 230 235 240
Ser Val Arg Phe Glu Glu Gly Val Pro Val Ala Leu Asn Gly Lys Glu
245 250 255
Tyr Ala Asp Pro Val Glu Leu Phe Leu Glu Ala Asn Arg Ile Gly Gly
260 265 270
Arg His Gly Leu Gly Met Ser Asp Gln Ile Glu Asn Arg Ile Ile Glu
275 280 285
Ala Lys Ser Arg Gly Ile Tyr Glu Ala Pro Gly Met Ala Leu Phe His
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Ile Ala Tyr Glu Arg Leu Val Thr Gly Ile His Asn Glu Asp Thr Ile
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Glu Gln Tyr Arg Ile Asn Gly Leu Arg Leu Gly Arg Leu Leu Tyr Gln
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Arg Trp Val Ala Lys Ala Val Thr Gly Glu Val Thr Leu Glu Leu Arg
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Arg Gly Asn Asp Tyr Ser Ile Leu Asn Thr Glu Ser Pro Asn Leu Thr
370 375 380
Tyr Gln Pro Glu Arg Leu Ser Met Glu Lys Val Glu Asp Ala Ala Phe
385 390 395 400
Thr Pro Leu Asp Arg Ile Gly Gln Leu Thr Met Arg Asn Leu Asp Ile
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<211> 367

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<213> Neisseria meningitidis

<400> 202

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Page 270

20

25

30

Lys Asp Arg Leu Glu Glu Val Ile Gly Leu Ser Glu Asp Pro Glu Leu
35 40 45
Trp Asn Asp Pro Lys Arg Ala Gln Glu Ile Gly Lys Glu Arg Lys Ile
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Asp Asn Arg Met Leu Ile Glu Met Thr Val Glu Glu Asn Asp Glu Glu
85 90 95
Gly Phe Ala Ala Val Gln Glu Asp Val Ala Gly Leu Glu Lys Gln Met
100 105 110
Ala Asp Leu Glu Phe Lys Arg Met Phe Asn Gln Pro Ala Asp Pro Asn
115 120 125
Asn Cys Phe Ile Asp Ile Thr Ala Gly Ala Gly Gly Thr Glu Ala Glu
130 135 140
Asp Trp Ala Gly Met Leu Phe Arg Met Tyr Ser Arg Tyr Ala Glu Arg
145 150 155 160
Lys Gly Phe Arg Ile Glu Ile Leu Glu Glu Asp Asp Gly Glu Ile Ala
165 170 175
Gly Ile Asn Arg Ala Thr Ile Arg Val Glu Gly Glu Tyr Ala Tyr Gly
180 185 190
Leu Leu Arg Thr Glu Thr Gly Val His Arg Leu Val Arg Tyr Ser Pro
195 200 205
Phe Asp Ser Asn Asn Lys Arg His Thr Ser Phe Ala Ser Val Phe Val
210 215 220
Tyr Pro Glu Ile Asp Asp Ser Ile Glu Ile Glu Ile Asn Pro Ala Asp
225 230 235 240
Leu Arg Ile Asp Thr Tyr Arg Ala Ser Gly Ala Gly Gly Gln His Ile
245 250 255
Asn Lys Thr Asp Ser Ala Val Arg Ile Thr His Glu Pro Thr Gly Ile
260 265 270
Val Val Gln Cys Gln Asn Asp Arg Ser Gln His Ala Asn Lys Ala Ala
275 280 285
Ala Met Glu Met Leu Lys Ser Lys Leu Tyr Glu Leu Glu Met Arg Lys
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Arg Asn Glu Glu Lys Gln Ala Leu Glu Glu Gly Lys Ser Asp Val Gly
305 310 315 320
Trp Gly Ser Gln Ile Arg Ser Tyr Val Leu Asp Ser Ser Arg Ile Lys
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Gln Val Ala Gly Val Lys Lys Val Leu Val Ala Asp Ala Ala His Tyr
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Ala Glu Gly Leu Ala Glu Glu Leu Ala Pro Leu Val Val Lys Leu Ala
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Ala Asp Tyr Arg Tyr Val Ala Ala Thr Ala Thr Thr Phe Gly Lys Asn
85 90 95
Leu Leu Pro Arg Val Ala Ala Leu Leu Asp Val Pro Gln Ile Ser Asp
100 105 110
Leu Thr Glu Ile Val Asp Asn Thr Thr Phe Val Arg Pro Ile Tyr Ala
115 120 125
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130 135 140
Thr Phe Arg Ala Thr Val Phe Asp Ala Val Ala Ala Gln Gly Gly Asn
145 150 155 160
Ala Glu Val Ile Asn Val Glu Ala Thr Pro Ala Gln Asn Leu Ser Arg
165 170 175
Phe Val Asn Arg Gln Leu Ser His Ser Asp Arg Pro Glu Leu Thr Gln
180 185 190
Ala Lys Val Ile Val Ser Gly Gly Arg Ala Leu Gly Ser Ala Glu Lys
195 200 205
Phe Asn Glu Val Leu Thr Pro Leu Ala Asp Val Leu Gly Ala Ala Ile
210 215 220
Gly Ala Ser Arg Ala Ala Val Asp Ala Glu Tyr Ala Pro Asn Asp Ala
225 230 235 240
Gln Val Gly Gln Thr Gly Lys Val Val Ala Pro Gln Leu Tyr Phe Ala
245 250 255
Ile Gly Ile Ser Gly Ala Ile Gln His Val Ala Gly Met Gln Asp Ser
260 265 270
Lys Val Ile Val Ala Ile Asn Lys Asp Ala Asp Ala Pro Ile Phe Asn
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Val Ala Asp Tyr Gly Leu Val Gly Asp Leu Phe Glu Ile Val Pro Gln
Page 272

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295

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Leu Thr Glu Val Leu Lys Asn
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<213> Neisseria meningitidis

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50 55 60

Glu Lys Lys Cys Glu Glu Thr Leu Arg Thr Ala Leu Ala Met Gly Ala
65 70 75 80

Asp Arg Ala Ile His Val Glu Thr Asp Thr Lys Leu Glu Ser Leu Ala
85 90 95

Val Ala Lys Leu Leu Lys Ala Val Ala Asp Lys Glu Asn Pro Gln Ile
100 105 110

Phe Phe Leu Gly Lys Gln Ala Ile Asp Asp Asp Ala Asn Gln Val Ala
115 120 125

Gln Met Leu Ala Ala Leu Leu Asn Ala Ala Gln Gly Thr Phe Ala Ser
130 135 140

Lys Val Gln Ile Glu Gly Asp Glu Val Gln Ile Val Arg Glu Ile Asp
145 150 155 160

Gly Gly Glu Glu Thr Ile Ala Leu Lys Leu Pro Ala Val Ile Ser Ala
165 170 175

Asp Leu Arg Leu Asn Glu Pro Arg Phe Val Lys Leu Pro Asn Ile Met
180 185 190

Ala Ala Lys Lys Lys Pro Leu Glu Lys Leu Thr Pro Asp Asp Leu Val
195 200 205

Ala Asp Ile Ser Pro Arg Leu Lys Thr Val Lys Phe Ala Glu Pro Lys
210 215 220

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Lys Leu Lys Asn Glu Ala Lys Val Ile
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          50          55          60
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          130          135          140
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          165          170          175
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          180          185          190
Lys Gly Asp Leu Arg Arg Ala Arg Ala Ala Ala Leu Asn Ile Val Pro
          195          200          205
Asn Ser Thr Gly Ala Ala Lys Ala Ile Gly Leu Val Ile Pro Glu Leu
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Asn Gly Lys Leu Asp Gly Ser Ala Gln Arg Val Pro Val Ala Ser Gly
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          260          265          270
Asn Glu Asp Gln Ile Val Ser Ser Asp Val Val Gly Ile Glu Tyr Gly
          275          280          285
Ser Leu Phe Asp Ala Thr Gln Thr Arg Val Met Thr Val Gly Gly Lys
          290          295          300
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Val Gly Thr Phe Asp Asn Arg Ser Ser Phe Gln Lys Gly Ile Phe Ser
50 55 60
Asp Gly Glu Asp Arg Leu Gly Ser Gln Ala Lys Thr Ile Leu Val Thr
65 70 75 80
His Leu Gln Gln Thr Asn Arg Phe Asn Val Leu Asn Arg Thr Asn Leu
85 90 95
Asn Ala Leu Lys Gln Glu Ser Gly Ile Ser Gly Lys Ala His Asn Leu
100 105 110
Lys Gly Ala Asp Tyr Val Val Thr Gly Asp Val Thr Glu Phe Gly Arg
115 120 125
Arg Asp Val Gly Asp His Gln Leu Phe Gly Ile Leu Gly Arg Gly Lys
130 135 140
Ser Gln Ile Ala Tyr Ala Lys Val Ala Leu Asn Ile Val Asn Val Asn
145 150 155 160
Thr Ser Glu Ile Val Tyr Ser Ala Gln Gly Ala Gly Glu Tyr Ala Leu
165 170 175
Ser Asn Arg Glu Ile Ile Gly Phe Gly Gly Thr Ser Gly Tyr Asp Ala
180 185 190
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210 215 220

<210> 207
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<213> Neisseria meningitidis

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Page 275

35

40

45

Gly Leu Cys Val Leu Ala Gly Glu Ile Thr Thr Thr Ala Gln Val Asp
50 55 60
Tyr Ile Lys Val Ala Arg Glu Thr Ile Lys Arg Ile Gly Tyr Asn Ser
65 70 75 80
Ser Glu Leu Gly Phe Asp Ala Asn Gly Cys Ala Val Gly Val Tyr Tyr
85 90 95
Asp Gln Gln Ser Pro Asp Ile Ala Gln Gly Val Asn Glu Gly Glu Gly
100 105 110
Ile Asp Leu Asn Gln Gly Ala Gly Asp Gln Gly Leu Met Phe Gly Tyr
115 120 125
Ala Cys Asp Glu Thr Pro Thr Leu Met Pro Phe Ala Ile Tyr Tyr Ser
130 135 140
His Arg Leu Met Gln Arg Gln Ser Glu Leu Arg Lys Asp Gly Arg Leu
145 150 155 160
Pro Trp Leu Arg Pro Asp Ala Lys Ala Gln Leu Thr Val Val Tyr Asp
165 170 175
Ser Glu Thr Gly Lys Val Lys Arg Ile Asp Thr Val Val Leu Ser Thr
180 185 190
Gln His Asp Pro Ser Ile Ala Tyr Glu Glu Leu Lys Asn Ala Val Ile
195 200 205
Glu His Ile Ile Lys Pro Val Leu Pro Ser Glu Leu Leu Thr Asp Glu
210 215 220
Thr Lys Tyr Leu Ile Asn Pro Thr Gly Arg Phe Val Ile Gly Gly Pro
225 230 235 240
Gln Gly Asp Cys Gly Leu Thr Gly Arg Lys Ile Ile Val Asp Thr Tyr
245 250 255
Gly Gly Ala Ala Pro His Gly Gly Gly Ala Phe Ser Gly Lys Asp Pro
260 265 270
Ser Lys Val Asp Arg Ser Ala Ala Tyr Ala Cys Arg Tyr Val Ala Lys
275 280 285
Asn Ile Val Ala Ala Gly Leu Ala Thr Gln Cys Gln Ile Gln Val Ser
290 295 300
Tyr Ala Ile Gly Val Ala Glu Pro Thr Ser Ile Ser Ile Asp Thr Phe
305 310 315 320
Gly Thr Gly Lys Ile Ser Glu Glu Lys Leu Ile Ala Leu Val Arg Glu
325 330 335
His Phe Asp Leu Arg Pro Lys Gly Ile Val Gln Met Leu Asp Leu Leu
340 345 350
Arg Pro Ile Tyr Ser Lys Ser Ala Ala Tyr Gly His Phe Gly Arg Glu
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Ala Ala Ala Gly Leu
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35 40 45
Ala Thr Gln Val Asp Val His Glu Arg Val Val Val Met Asp Leu Thr
50 55 60
Glu Asp Arg Ser Glu Pro Arg Val Phe Ile Asn Pro Val Ile Val Glu
65 70 75 80
Lys Asp Gly Glu Thr Thr Tyr Glu Glu Gly Cys Leu Ser Val Pro Gly
85 90 95
Ile Tyr Asp Thr Val Thr Arg Ala Glu Arg Val Lys Val Glu Ala Leu
100 105 110
Asn Glu Lys Gly Glu Lys Phe Thr Leu Glu Ala Asp Gly Leu Leu Ala
115 120 125
Ile Cys Val Gln His Glu Leu Asp His Leu Met Gly Ile Val Phe Val
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<213> Neisseria meningitidis

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35 40 45
Cys Leu Asn Val Gly Cys Ile Pro Ser Lys Ala Leu Leu Gln Ser Ser
50 55 60
Glu His Phe His Ala Ala Gln His Glu Phe Ala Glu His Gly Ile Thr
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65		70		75		80
Val	Gly	Asp	Val	Lys ₈₅	Phe	Asp
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				Lys ₉₀	Met	Ile
					Glu	Arg
					Lys ₉₅	Asp
Ala	Ile	Val	Thr ₁₀₀	Lys	Leu	Thr
					Gly ₁₀₅	Val
					Lys	Phe
					Leu	Phe
					Gln	Lys
Asn	Lys	Val ₁₁₅	Thr	Ser	Leu	Phe
					Gly ₁₂₀	Thr
					Ala	Ser
					Phe	Ala
					Gly ₁₂₅	Lys
					Asn	
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					Asp	Asn
					Lys	Gly ₁₄₀
					Glu	Lys
					Thr	Val
Ile	Glu	Ala	Lys	His	Val ₁₅₀	Ile
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					Thr	Gly ₁₅₅
					Ser	Val
					Pro	Arg
					Pro ₁₆₀	
Leu	Pro	Gln	Val	Ala ₁₆₅	Ile	Asp
					Asn	Val
					Asn ₁₇₀	Val
					Leu	Asp
					Asn	Glu
					Gly ₁₇₅	
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					Pro	Ala
					Lys ₁₈₅	Leu
					Gly	Val
					Ile ₁₉₀	Gly
					Ser	
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					Val	Trp
					Asn	Arg
					Arg ₂₀₅	Val
					Gly	Ala
Glu	Val ₂₁₀	Thr	Ile	Leu	Glu	Ala
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					Pro	Thr
					Phe	Leu
					Ala ₂₂₀	Ala
					Ala	Ala
					Ala	Asp
Gln	Gln	Ile	Ala	Lys	Glu ₂₃₀	Ala
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					Thr ₂₃₅	Thr
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					Gln	Gly
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					Gly ₂₅₀	Asp
					Ile	Lys
					Ser	Glu
					Gly ₂₅₅	
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					Gly	Glu
					Ala ₂₇₀	Lys
					Thr	
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					Ile	Gly
					Arg	Ile
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					Thr	
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					Leu	Glu
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					Leu	Pro
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					Thr	Asp ₃₆₅
					Pro	Glu
					Ile	
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					Gln	Leu
					Lys	Ala
					Glu ₃₈₀	Glu
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					Glu	
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					Gly ₃₉₅	Arg
					Ala	Leu
					Ala ₄₀₀	
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					Val	Leu
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					Ala	Lys
					Thr	

405

410

415

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 Val Thr Glu Gly Val Thr Ala Leu Glu Phe Phe Ala Ser Ser Glu Asp
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<213> Neisseria meningitidis

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 Ser Ser Tyr Leu Pro Ala Ile Leu Asn Gln Leu Phe Asp Val Lys Ile
 50 55 60
 Gln Lys Ile Lys Val Ala Val Ser Glu Ile Glu Arg Gly Ser Phe Leu
 65 70 75 80
 Glu Lys Leu Ile Phe Asn Leu Phe Phe Lys Asp Glu Asp Ala Tyr Asn
 85 90 95
 Glu Phe Cys Leu Lys Ile Arg Lys Phe Leu Gly Thr Glu Asn Gln Asp
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 Gly Ser Ile Asn Met Ser Lys Ile Ile Met Phe Ala Met Thr Thr Leu
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 Ser Val Ala Leu Asp Gly Glu His Leu Val Ser Val Val Lys Glu Val
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 Thr Gly Ser Ser Lys Gln Lys Thr Ala Glu Asn Val Ala Lys Val Tyr
 180 185 190
 Ala Pro Ala Ser Lys Asn Asn Gly Ser Ile Thr Leu Gly Thr Asp Asp
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 Asp Val Asp Leu Arg Asp Thr Pro Leu Thr Glu Asp Tyr Thr Asp Ile

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210

215

220

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 260 265 270
 Ala Phe Lys Glu Ala Leu Gln Pro Glu Phe Lys Gln Tyr Ala Lys Gln
 275 280 285
 Val Lys Ile Asn Ala Ala Ala Met Ala Glu Glu Leu Val Lys Arg Gly
 290 295 300
 Leu Arg Ile Val Ser Gly Arg Thr Glu Ser His Val Phe Leu Val Asp
 305 310 315 320
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 325 330 335
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 340 345 350
 Lys Pro Phe Val Thr Ser Gly Ile Arg Ile Gly Ser Ala Ala Met Thr
 355 360 365
 Thr Arg Gly Phe Asn Glu Ala Asp Ala Arg Val Leu Ala Asn Leu Val
 370 375 380
 Ala Asp Val Leu Ser Asn Pro Glu Asp Glu Ala Asn Leu Ala Lys Val
 385 390 395 400
 Arg Lys Gln Val Thr Ala Leu Cys Asn Lys Tyr Pro Val Tyr Gly Ala
 405 410 415

<210> 212

<211> 233

<212> PRT

<213> Neisseria meningitidis

<400> 212

Met Ser Ala Arg Glu Asn Ile Leu Ala Lys Leu Lys Lys Ala Asp Ala
 1 5 10 15
 Leu Pro Met Glu Glu Pro Ala Val Phe Asp Tyr Tyr Arg Glu Met Gly
 20 25 30
 Val Ser Trp Gly Ser Glu Val Glu Arg Leu Lys His Trp Ala Ala Ala
 35 40 45
 Met Arg Ala Val Lys Thr Glu Ile Tyr Trp Val Thr Lys Ser Asn Trp
 50 55 60
 Met Gln Val Phe Arg Glu Ala Ala Glu Gly Lys Gly Leu Lys Asn Ile
 65 70 75 80
 Leu Leu Pro Leu Ala Thr Glu His Gly Gln Ile Ala Arg Ala Ala Leu
 85 90 95

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Ala Asp Ser Asn Ile Glu Pro Ile Ala Phe Glu Arg Glu Ile Asp Thr
100 105 110
Trp Lys Thr Glu Phe Phe Thr Asn Ile Asp Ala Gly Phe Ser Gly Ala
115 120 125
Gln Cys Gly Ile Ala Arg Thr Gly Thr Leu Met Leu Phe Ser Ser Pro
130 135 140
Glu Glu Pro Arg Thr Leu Ser Leu Val Pro Pro Val His Phe Cys Leu
145 150 155 160
Phe Asp Thr Ser Lys Met Tyr Asn Glu Phe His Asn Ala Val Glu Gly
165 170 175
Glu Lys Leu Val Glu Asn Gly Met Pro Thr Asn Val Phe Leu Ile Ser
180 185 190
Gly Pro Ser Lys Thr Ala Asp Ile Gln Leu Thr Leu Ala Tyr Gly Ala
195 200 205
His Gly Pro Arg Asp Leu Val Ile Leu Ala Ile Leu Pro Asp His Ile
210 215 220
Ser Pro Ala Asp Leu Glu Glu Asn Ala
225 230

<210> 213
<211> 174
<212> PRT
<213> Neisseria meningitidis

<400> 213
Met Ser Leu Asn Lys Val Ile Leu Ile Gly Arg Leu Gly Arg Asp Pro
1 5 10 15
Glu Val Arg Tyr Met Pro Asn Gly Glu Ala Val Cys Asn Phe Ser Val
20 25 30
Ala Thr Ser Glu Thr Trp Asn Asp Arg Asn Gly Gln Arg Val Glu Arg
35 40 45
Thr Glu Trp His Asn Ile Thr Met Tyr Arg Lys Leu Ala Glu Ile Ala
50 55 60
Gly Gln Tyr Leu Lys Lys Gly Gly Leu Val Tyr Leu Glu Gly Arg Ile
65 70 75 80
Gln Ser Arg Lys Tyr Gln Gly Lys Asp Gly Ile Glu Arg Thr Ala Tyr
85 90 95
Asp Ile Val Ala Asn Glu Met Lys Met Leu Gly Gly Arg Asn Glu Asn
100 105 110
Ser Gly Gly Ala Pro Tyr Glu Glu Gly Tyr Gly Gln Ser Gln Glu Ala
115 120 125
Tyr Gln Arg Pro Ala Gln Gln Ser Arg Gln Pro Ala Ser Asp Ala Pro
130 135 140
Ser His Pro Gln Glu Ala Pro Ala Ala Pro Arg Arg Gln Pro Val Pro
145 150 155 160

Ala Ala Ala Pro Val Glu Asp Ile Asp Asp Ile Pro Phe
165 170

<210> 214
<211> 943
<212> PRT
<213> Neisseria meningitidis

<400> 214
Met Asn Lys Lys His Gly Phe Pro Leu Thr Leu Thr Ala Leu Ala Ile
1 5 10 15
Ala Thr Ala Phe Pro Ala Tyr Ala Ala Gln Ala Gly Gly Ala Thr Pro
20 25 30
Asp Ala Ala Gln Thr Gln Ser Leu Lys Glu Ile Thr Val Arg Ala Ala
35 40 45
Lys Val Gly Arg Arg Ser Lys Glu Ala Thr Gly Leu Gly Lys Ile Val
50 55 60
Lys Thr Ser Glu Thr Leu Asn Lys Glu Gln Val Leu Gly Ile Arg Asp
65 70 75 80
Leu Thr Arg Tyr Asp Pro Gly Val Ala Val Val Glu Gln Gly Asn Gly
85 90 95
Ala Ser Gly Gly Tyr Ser Ile Arg Gly Val Asp Lys Asn Arg Val Ala
100 105 110
Val Ser Val Asp Gly Val Ala Gln Ile Gln Ala Phe Thr Val Gln Gly
115 120 125
Ser Leu Ser Gly Tyr Gly Gly Arg Gly Gly Ser Gly Ala Ile Asn Glu
130 135 140
Ile Glu Tyr Glu Asn Ile Ser Thr Val Glu Ile Asp Lys Gly Ala Gly
145 150 155 160
Ser Ser Asp His Gly Ser Gly Ala Leu Gly Gly Ala Val Ala Phe Arg
165 170 175
Thr Lys Glu Ala Ala Asp Leu Ile Ser Asp Gly Lys Ser Trp Gly Ile
180 185 190
Gln Ala Lys Thr Ala Tyr Gly Ser Lys Asn Arg Gln Phe Met Lys Ser
195 200 205
Leu Gly Ala Gly Phe Ser Lys Asp Gly Trp Glu Gly Leu Leu Ile Arg
210 215 220
Thr Glu Arg Gln Gly Arg Glu Thr Arg Pro His Gly Asp Ile Ala Asp
225 230 235 240
Gly Val Glu Tyr Gly Ile Asp Arg Leu Asp Ala Phe Arg Gln Thr Tyr
245 250 255
Asp Ile Lys Arg Lys Thr Arg Glu Pro Phe Phe Ser Val Glu Gly Glu
260 265 270
Arg Glu Ser Lys Pro Val Ala Lys Leu Ala Gly Tyr Gly Lys Tyr Leu
275 280 285

SEQLIST_PP019737.0004.txt

Asn Asn Gln Leu Asn Arg Trp Val Lys Glu Arg Ile Glu Gln Asn Gln
 290 295 300
 Pro Leu Ser Ala Glu Glu Glu Ala Gln Val Arg Glu Ala Gln Ala Arg
 305 310 315 320
 His Glu Asn Leu Ser Ala Gln Ala Tyr Thr Gly Gly Gly Arg Ile Leu
 325 330 335
 Pro Asp Pro Met Asp Tyr Arg Ser Gly Ser Trp Leu Ala Lys Leu Gly
 340 345 350
 Tyr Arg Phe Gly Gly Arg His Tyr Val Gly Gly Val Phe Glu Asp Thr
 355 360 365
 Lys Gln Arg Tyr Asp Ile Arg Asp Met Thr Glu Lys Gln Tyr Tyr Gly
 370 375 380
 Thr Asp Glu Ala Glu Lys Phe Arg Asp Lys Ser Gly Val Tyr Asp Gly
 385 390 395 400
 Asp Asp Phe Arg Asp Gly Leu Tyr Phe Val Pro Asn Ile Glu Glu Trp
 405 410 415
 Lys Gly Asp Lys Asn Leu Val Arg Gly Ile Gly Leu Lys Tyr Ser Arg
 420 425 430
 Thr Lys Phe Ile Asp Glu His His Arg Arg Arg Arg Met Gly Leu Leu
 435 440 445
 Tyr Arg Tyr Glu Asn Glu Ala Tyr Ser Asp Asn Trp Ala Asp Lys Ala
 450 455 460
 Val Leu Ser Phe Asp Lys Gln Gly Val Ala Thr Asp Asn Asn Thr Leu
 465 470 475 480
 Lys Leu Asn Cys Ala Val Tyr Pro Ala Val Asp Lys Ser Cys Arg Ala
 485 490 495
 Ser Ala Asp Lys Pro Tyr Ser Tyr Asp Ser Ser Asp Arg Phe His Tyr
 500 505 510
 Arg Glu Gln His Asn Val Leu Asn Ala Ser Phe Glu Lys Ser Leu Lys
 515 520 525
 Asn Lys Trp Thr Lys His His Leu Thr Leu Gly Phe Gly Tyr Asp Ala
 530 535 540
 Ser Lys Ala Ile Ser Arg Pro Glu Gln Leu Ser His Asn Ala Ala Arg
 545 550 555 560
 Ile Ser Glu Ser Thr Gly Phe Asp Glu Asn Asn Gln Asp Lys Tyr Leu
 565 570 575
 Leu Gly Lys Pro Glu Val Val Glu Gly Ser Val Cys Gly Tyr Ile Glu
 580 585 590
 Thr Leu Arg Ser Arg Lys Cys Val Pro Arg Lys Ile Asn Gly Ser Asn
 595 600 605
 Ile His Ile Ser Leu Asn Asp Arg Phe Ser Ile Gly Lys Tyr Phe Asp
 610 615 620

SEQLIST_PP019737.0004.txt

Phe Ser Leu Gly Gly Arg Tyr Asp Arg Lys Asn Phe Thr Thr Ser Glu
 625 630 635 640
 Glu Leu Val Arg Ser Gly Arg Tyr Val Asp Arg Ser Trp Asn Ser Gly
 645 650 655
 Ile Leu Phe Lys Pro Asn Arg His Phe Ser Val Ser Tyr Arg Ala Ser
 660 665 670
 Ser Gly Phe Arg Thr Pro Ser Phe Gln Glu Leu Phe Gly Ile Asp Ile
 675 680 685
 Tyr His Asp Tyr Pro Lys Gly Trp Gln Arg Pro Ala Leu Lys Ser Glu
 690 695 700
 Lys Ala Ala Asn Arg Glu Ile Gly Leu Gln Trp Lys Gly Asp Phe Gly
 705 710 715 720
 Phe Leu Glu Ile Ser Ser Phe Arg Asn Arg Tyr Thr Asp Met Ile Ala
 725 730 735
 Val Ala Asp His Lys Thr Lys Leu Pro Asn Gln Ala Gly Gln Leu Thr
 740 745 750
 Glu Ile Asp Ile Arg Asp Tyr Tyr Asn Ala Gln Asn Met Ser Leu Gln
 755 760 765
 Gly Val Asn Ile Leu Gly Lys Ile Asp Trp Asn Gly Val Tyr Gly Lys
 770 775 780
 Leu Pro Glu Gly Leu Tyr Thr Thr Leu Ala Tyr Asn Arg Ile Lys Pro
 785 790 795 800
 Lys Ser Val Ser Asn Arg Pro Gly Leu Ser Leu Arg Ser Tyr Ala Leu
 805 810 815
 Asp Ala Val Gln Pro Ser Arg Tyr Val Leu Gly Phe Gly Tyr Asp Gln
 820 825 830
 Pro Glu Gly Lys Trp Gly Ala Asn Ile Met Leu Thr Tyr Ser Lys Gly
 835 840 845
 Lys Asn Pro Asp Glu Leu Ala Tyr Leu Ala Gly Asp Gln Lys Arg Tyr
 850 855 860
 Ser Thr Lys Arg Ala Ser Ser Ser Trp Ser Thr Ala Asp Val Ser Ala
 865 870 875 880
 Tyr Leu Asn Leu Lys Lys Arg Leu Thr Leu Arg Ala Ala Ile Tyr Asn
 885 890 895
 Ile Gly Asn Tyr Arg Tyr Val Thr Trp Glu Ser Leu Arg Gln Thr Ala
 900 905 910
 Glu Ser Thr Ala Asn Arg His Gly Gly Asp Ser Asn Tyr Gly Arg Tyr
 915 920 925
 Ala Ala Pro Gly Arg Asn Phe Ser Leu Ala Leu Glu Met Lys Phe
 930 935 940

<210> 215
 <211> 544
 <212> PRT

<213> Neisseria meningitidis

<400> 215

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Met Thr Lys Phe Ile Phe Val Thr Gly Gly Val Val Ser Ser Leu Gly
1      5      10      15
Lys Gly Ile Ala Ala Ala Ser Ile Ala Ala Ile Leu Glu Ser Arg Gly
20      25      30
Leu Asn Val Thr Met Leu Lys Leu Asp Pro Tyr Ile Asn Val Asp Pro
35      40      45
Gly Thr Met Ser Pro Phe Gln His Gly Glu Val Phe Val Thr Asp Asp
50      55      60
Gly Ala Glu Thr Asp Leu Asp Leu Gly His Tyr Glu Arg Phe Ile Asp
65      70      75      80
Ser Thr Met Thr Arg Arg Asn Ser Phe Ser Thr Gly Gln Val Tyr Glu
85      90      95
Asn Val Ile Ala Lys Glu Arg Arg Gly Asp Tyr Leu Gly Gly Thr Val
100     105     110
Gln Val Ile Pro His Ile Thr Asp Glu Ile Lys Arg Arg Ile His Glu
115     120     125
Gly Ala Ala Gly Tyr Asp Val Ala Ile Val Glu Ile Gly Gly Thr Val
130     135     140
Gly Asp Ile Glu Ser Leu Pro Phe Leu Glu Ala Ile Arg Gln Met Arg
145     150     155     160
Ser Gln Leu Gly Arg Asn Asn Thr Leu Phe Ala His Leu Ser Tyr Val
165     170     175
Pro Tyr Ile Ala Ala Ala Gly Glu Ile Lys Thr Lys Pro Thr Gln His
180     185     190
Thr Val Lys Glu Met Leu Ser Ile Gly Leu Gln Pro Asp Ile Leu Ile
195     200     205
Cys Arg Met Asp Arg Thr Met Pro Ala Asp Glu Arg Arg Lys Ile Ala
210     215     220
Leu Phe Cys Asn Val Glu Glu Arg Ala Ile Val Gly Ser Tyr Asp Val
225     230     235     240
Asp Ser Ile Tyr Glu Cys Pro Glu Met Leu His Asp Gln Gly Ile Asp
245     250     255
Asn Ile Ile Thr Glu Gln Leu Gln Leu Asn Val Gln Gln Ala Asp Leu
260     265     270
Thr Ala Trp Lys Lys Ile Val His Ala Ile Gln Asn Pro Lys His Thr
275     280     285
Val Lys Ile Ala Met Val Gly Lys Tyr Val Asp Leu Thr Glu Ser Tyr
290     295     300
Lys Ser Leu Ile Glu Ala Leu Lys His Ala Gly Ile His Thr Glu Thr
305     310     315     320

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SEQLIST_PP019737.0004.txt

Asp Val Gln Ile Thr Phe Val Asp Ser Glu Asn Ile Glu Lys Asn Lys
 325 330 335
 Gly Asp Val Ser Met,Leu Lys Asp Met Asp Ala Ile Leu Val Pro Gly
 340 345 350
 Gly Phe Gly Ser Arg Gly Val Glu Gly Lys Ile Ala Ala Val Arg Tyr
 355 360 365
 Ala Arg Glu Asn Asn Val Pro Tyr Leu Gly Ile Cys Leu Gly Met Gln
 370 375 380
 Ile Ala Leu Ile Glu Tyr Ala Arg Asp Val Ala Gly Leu Lys Gly Ala
 385 390 395 400
 Asn Ser Thr Glu Phe Asp Leu Lys Cys Ala Ala Pro Val Val Ala Leu
 405 410 415
 Ile Asp Glu Trp Gln Thr Ala Asp Gly Ser Val Glu Thr Arg Asp Glu
 420 425 430
 Ser Thr Asp Leu Gly Gly Thr Met Arg Leu Gly Ala Gln Glu Val Glu
 435 440 445
 Leu Lys Ala Gly Ser Leu Ala Ala Lys Ile Tyr Gly Ser Gly His Ile
 450 455 460
 Arg Glu Arg His Arg His Arg Tyr Glu Val Asn Asn Asn Tyr Val Pro
 465 470 475 480
 Thr Leu Glu Gln Ala Gly Leu Val Ile Gly Gly Val Ser Ala Gly Arg
 485 490 495
 Glu Arg Leu Val Glu Thr Ile Glu Leu Pro Asn His Pro Trp Phe Phe
 500 505 510
 Ala Cys Gln Phe His Pro Glu Phe Thr Ser Asn Pro Arg Lys Gly His
 515 520 525
 Pro Leu Phe Thr Ala Phe Val Lys Ala Ala Leu Asn Asn Lys Lys Ala
 530 535 540

<210> 216
 <211> 163
 <212> PRT
 <213> Neisseria meningitidis

<400> 216
 Met Arg His Ile Leu Ser Val Leu Ile Glu Asn Glu Ser Gly Ala Met
 1 5 10 15
 Ser Arg Val Val Gly Leu Phe Ser Ala Arg Asp Tyr Asn Ile Asp Ser
 20 25 30
 Leu Ala Val Ala Pro Thr Glu Asp Lys Thr Leu Ser Arg Met Thr Ile
 35 40 45
 Val Thr His Gly Asp Glu Gln Val Ile Glu Gln Ile Thr Lys Gln Leu
 50 55 60
 Asn Lys Leu Ile Glu Val Ile Lys Val Val Asp Leu Asn Glu Ser Arg
 65 70 75 80

SEQLIST_PP019737.0004.txt

Phe Val Glu Arg Glu Leu Met Leu Val Lys Val Arg Ala Ala Gly Lys
85 90 95
Asp Arg Asp Glu Phe Leu Arg Leu Thr Glu Ile Tyr Arg Gly Ser Ile
100 105 110
Ile Asp Val Thr Asp Arg Ser Tyr Thr Ile Glu Ile Thr Gly Ser Thr
115 120 125
Asp Lys Leu Asp Ser Phe Leu Glu Thr Val Gly Arg Ala Gln Ile Leu
130 135 140
Glu Thr Val Arg Thr Gly Ala Ala Gly Ile Gly Arg Gly Glu Arg Ile
145 150 155 160
Leu Lys Ile

<210> 217
<211> 371
<212> PRT
<213> Neisseria meningitidis

<400> 217
Met Arg Leu Phe Lys Ser Leu Lys Asn Pro Lys Lys Thr Asp Ala Lys
1 5 10 15
Leu Pro Lys Lys Ser Ser Gly Leu Asn Asn Arg Ala Ala Ile Gly Ile
20 25 30
Asp Ile Asp Gln His Ser Ile Lys Met Val Gln Leu Ser Gly Arg Ser
35 40 45
Leu Asn Gln Ile Gln Leu Glu Lys Tyr Val Ile Ala Lys Leu Pro Lys
50 55 60
Asn Ile Ile Gln Gly Asn Lys Val Gln Asn Tyr Asp Gln Leu Val Thr
65 70 75 80
Tyr Leu Gln Gln Ala Tyr Ala Lys Leu Gly Thr Ser Cys Lys Asn Ile
85 90 95
Ile Ala Ser Val Pro Gln Asn Leu Ala Thr Ile Glu Gln Leu Thr Tyr
100 105 110
Thr Asp Lys Asp Ala Glu Leu Asp Leu Gln Gly Phe Val Glu Ser Ser
115 120 125
Ile Ser Glu Val Ser Ser Ile Ser Leu Glu Glu Ala Asn Tyr Asp Tyr
130 135 140
Gln Val Leu Ser Gln Ser Ala Ala Gly Glu Ala Val Leu Ala Val Ala
145 150 155 160
Ser Arg Lys Asp Glu Ile Glu Pro Leu Ile Asp Ala Phe Asn Ala Ala
165 170 175
Gly Met Lys Leu Ser Ala Leu Asp Val Asp Ile Phe Gly Gln Tyr Asn
180 185 190
Ala Tyr Ala Leu Trp Ile Asn His Phe Ala Pro Glu Leu Ala Ala Glu
195 200 205

SEQLIST_PP019737.0004.txt

Lys Val Ala Ile Phe Gly Val Tyr Ala Ala Gln Thr Tyr Ala Leu Val
 210 215 220
 Ile Gln Asp Gly Lys Ile Leu Tyr Lys Gln Glu Thr Ser Val Ser Glu
 225 230 235 240
 Glu Gln Leu Asn Gln Leu Ile Gln Arg Thr Tyr Gln Val Thr Glu Glu
 245 250 255
 Lys Ala Glu Glu Ile Ile Asn Ser Pro Gln Lys Pro Ser Asp Tyr Gln
 260 265 270
 Glu Ser Val Ala Asn Tyr Phe Asn Gln Gln Ile Thr Gln Glu Ile Gln
 275 280 285
 Arg Val Leu Gln Phe Tyr Tyr Thr Thr Gln Thr Ala Asp Asp Met Thr
 290 295 300
 Asp Ile Lys His Ile Leu Leu Thr Gly Glu Ala Ala Arg Gln Glu Gly
 305 310 315 320
 Ile Ala Gln Thr Val Ala Ser Gln Thr Asn Ala Asp Val Gln Cys Val
 325 330 335
 His Pro Ala Arg Tyr Phe Ala Asp Asn Leu Lys Thr Asp Lys Gln Gln
 340 345 350
 Phe Glu Leu Asp Ala Pro Thr Leu Thr Arg Ala Phe Gly Leu Ala Val
 355 360 365
 Arg Gly Leu
 370